CITY AND COUNTY OF SAN FRANCISCO
DEPAPTMENT OF CITY PLANNING

DRAFT
FILE NO. 87.399EC

300 ULLOA STREET RESIDENTIAL CARE FACILITY ENVIRONMENTAL IMPACT REPORT

DEIR PUBLICATION DATE: June 30,1989
DEIR PUBLIC HEARING DATE: August 3,1989
DEIR PUBLIC COMMENT PERIOD: June 30,1989 to August 3,1989

WRITTEN COMMENTS SHOULD BE SENT TO:
THE ENVIRONMENTAL REVIEW OFFICER
[illegible]cALLISTER STREET, SIXTH FLOOR
[illegible]FRANCISCO, CA 94102

300 Ulloa Street,
residential care
1989.

PLACE
POSTAGE
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Department of City Planning
Office of Environmental Review
450 McAllister Street, 6th Floor
San Francisco, California 94102

Attn: Mr. Ivan Christie, EIR Coordinator
87.399EC - 300 Ulloa Street

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300 Ulloa Street
Proposed Residential Care Facility
Draft Environmental Impact Report

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

I. SUMMARY

A. PROJECT DESCRIPTION

The proposed project is the construction of a 93,660 square-foot, 120-bedroom residential care facility for senior citizens at 300 Ulloa Street, Lot 7 in Assessor's Block 2876. The project would retain the existing First Church of the Nazarene on the site. Access would be provided from Ulloa Street, as at present.

The project would consist of a two- to four-story building over a partially-excavated parking garage and would be designed with varying setbacks to visually break up the south facade. Building heights would vary from 25 to 38 feet above grade with an average overall height of 30.5 feet. Building setbacks of 23 to 25 feet from the southern and western site boundaries, respectively, and from 65 to 130 feet from the irregular northern site boundary would be provided. The north facade of the proposed building would be set back ten feet from the toe of the slope.

The ground level parking garage would provide 44 parking spaces plus one truck loading dock; outdoor parking for 17 cars, including three handicapped spaces, and one van/shuttle vehicle would be provided between the new building and church.

The project would include the following slope stabilization measures:

- Loose rock masses would be removed and rock bolts would be installed. This measure would remove loose rocks and anchor the remaining rock mass on the hillside with rock bolts and wire mesh.

- Loose boulders or rocks located on the slope above the bench would be removed from slopes so that they would not roll downslope.

- The crest of the slope would be reshaped to remove overburden soils where weathered rock and vegetation are steep or overhang the underlying cut slope. These zones are susceptible to progressive failure which would result in an accumulation of soil and rock debris at the toe of the slope.

- The slope would be draped with wire mesh which would be secured to the slope. This would retard ravelling or sloughing of weathered rocks, would support vegetation, such as vines, planted as landscaping, and would restrain dislodged blocks of rock to prevent them from suddenly rolling downhill.

- A ten-foot high, reinforced, concrete catchment wall would be built at the toe of the slope to provide additional back-up protection for the project building from slope ravelling/sloughing, rockfall, or failures.

Project implementation would involve stabilization of the slopes above the graded bench on which the project is proposed to be constructed (including removal of loose and weak rocks, boulders, and rubble (about 12,000 cubic yards), followed by rock bolting and installation of wire mesh and vegetation); removal of vegetation, including about 35 trees with diameters of six inches or greater; cutting and filling on the bench for building construction (requiring removal of about 7,000 cubic yards of material); and landscaping usable open space around the project. A long-term program would be established to maintain stabilized slopes.

The site is an abandoned quarry located west of Waithman Way, one block north of Portola Drive, and consists of a graded bench below a steep hillside. It extends uphill to Edgehill Way and lies within an RH-1(D) (Single-Family Detached) zoning district. The site is surrounded by single-family residential development to the north, east, and south and is contiguous to City-owned open space to the west.

Project construction is expected to take 16 to 18 months and would cost about $8,600,000. The project is proposed as a Planned Unit Development (PUD) under Section 304 of the City Planning Code. It would require Conditional Use authorization by the City Planning Commission.

B. ENVIRONMENTAL EFFECTS

GEOLOGY

Without stabilization, the site's hillside would weather and ravel gradually, over time; in addition, more rapid landslides and rockfalls could occur following periods of high intensity rainfall or major seismic events. These natural processes would be expected with or without site development, but excavations made for development without implementation of slope stabilization measures could increase instability of existing slopes.

TRANSPORTATION

Construction impacts associated with the project would consist of additional truck trips and construction worker vehicle trips during the 16- to 18-month construction period. Project excavation would require removal of approximately

7,000 cubic yards of soil and would require about 500 truck trips during the initial six-month period. As many as 50 truck trips could be made per day (25 to the site and 25 from the site).

The project would generate a maximum of 200 daily one-way vehicle trips and about 36 vehicle trips during the peak afternoon traffic period (between 2:00 and 3:30 PM). The peak hour of the project would correspond with the peak hour of the adjacent street (the 200-block of Ulloa Street) but is earlier than the peak hour of the other surrounding streets (Portola Drive and Laguna Honda Boulevard). Most streets in the nearby area have their peak traffic period between 4:45 and 6:15 PM.

Twenty-five percent of inbound traffic (to the site) would be expected to use Ulloa Street west of the site, with 75% of the inbound traffic using Waithman Way; 45% of outbound traffic (leaving the site) would be expected to use Ulloa Street east of the site, with 55% using Waithman Way. Of the 36 vehicle trips expected during the project's PM peak hour, eight project-generated trips are estimated to be made on the 200-block of Ulloa Street.

Project-generated traffic would not change existing (1987-1988) or future (1997) levels of service (LOS) at the intersections of Portola Drive and Laguna Honda Boulevard, Portola Drive and Miraloma-Marne, or Portola Drive and Kensington Way during the PM peak hour. The project would increase the volume/capacity (V/C) ratio by 0.01 at the Portola Drive-Laguna Honda Boulevard intersection, but such an increase is less than present day-to-day fluctuations in traffic and is not likely to be noticeable. Using the TIRE methodology (Traffic Infusion on a Residential Environment), it is estimated that project traffic impacts would not be noticeable on residential streets, since the index value would increase by 0.02 on the 200-block of Ulloa Street; index changes of less than 0.1 are not considered noticeable.

The proposed project and existing church would generate a combined parking demand of 36 to 62 parking spaces on an average Sunday. Twenty-one spaces would be provided exclusively for the residential care facility, and 40 spaces are proposed to be shared with the church, for a total of 61 off-street spaces on the project site.

The project is expected to result in an average of two delivery truck trips per day, an average of 2.1 ambulance calls per month, and an estimated 40 to 60 pedestrian trip-ends on an average weekday (including those made walking to or from bus stops).

The sponsor would request the Department of Public Works to improve the

intersection at Ulloa Street, Waithman Way, and the site driveway by installing stop signs, painting stop bars on the pavement, and trimming shrubbery to reduce potential driver confusion.

NOISE

Noise levels would be generated during project construction within a five- to ten-decibel (dB) range of 75 to 80 dBA when several pieces of equipment are used. These noise levels would interfere with conversations inside and outside nearby homes. Maximum instantaneous noise levels would be expected to reach 80 to 85 dB in the rear yards of homes located on the north side of Ulloa Street, 70 to 75 dB outside homes on Rockwood Court, and 75 to 80 dB outside the nearest homes on Edgehill Way. Construction trucks would generate an average noise level of 50 to 55 dBA and a maximum noise level of about 80 dBA outside homes on streets used by these vehicles -- similar to the noise levels generated by buses and trucks currently on these streets.

Project-generated traffic would increase noise levels by less than one decibel on local streets and by about one decibel at the facade of the Ulloa Street home nearest to the site driveway.

Rooftop mechanical equipment which meets the San Francisco Noise Ordinance (274-72) limits would be barely audible over background noise levels outside Edgehill Way, Rockwood Court, or Ulloa Street homes. Noise energy reflected off the cliff behind the project would not be audible above background noise levels outside homes on the south side of Ulloa Street or along Portola Drive. (Homes on the north side of Ulloa Street would not be in the line-of-sight of the equipment.)

URBAN DESIGN

The site is visible from many off-site locations on or near Portola Drive to the south but is not visible from public areas on Mount Davidson.

The proposed building would be visible from these off-site locations but would not break the profile of the hillside backdrop. Except for rooftop design features (such as chimneys), building heights would not be taller than the 40-foot steeple of the existing church.

OPEN SPACE

The project site is adjacent to unimproved open space under the jurisdiction of the Recreation and Park Department. The project would provide public access to the open space from the project site via a footpath from Ulloa Street along the site's southern boundary.

POPULATION

Project construction would result in a maximum of 50 workers on the site at any one time. Upon completion, the project would introduce a maximum of 140 residents and 26 employees to the site.

C. MITIGATION MEASURES

No significant project-specific or cumulative impacts have been identified, and, therefore, no mitigation measures would be needed. Several measures are included in the project to reduce or eliminate possible geotechnical impacts, in addition to which the Bureau of Building Inspection (BBI) would review final building plans, geotechnical studies prepared for the project, and slope stabilization measures. The BBI would require that additional site-specific reports be prepared in conjunction with permit applications, as needed. In addition, the BBI has the right to impose additional measures, as necessary.

D. ALTERNATIVES TO THE PROPOSED PROJECT

ALTERNATIVE A -- NO PROJECT

This alternative would entail no change to the project site. No new development would take place, and no slope stabilization measures would be implemented. The existing church would continue to function as at present. This alternative would allow the site to remain vacant for other potential uses in the future.

ALTERNATIVE B -- 150-UNIT RESIDENTIAL CARE FACILITY

Alternative B would result in a building about 17% larger (150 units) than the proposed project (120 units maximum); this alternative would provide 180 bedrooms, compared to 120 with the project. The building would consist of four and five stories over partially excavated parking. Building setbacks from

property lines would be 23 feet, 25 feet, and about 60 to 130 feet from the southern, western, and northern site boundaries, respectively. No new development is assumed east of the existing church near the eastern site boundary other than improving the driveway (repaving, providing pedestrian access, and landscaping). The ground-level parking garage would provide 53 parking spaces and one truck loading space; outdoor parking for 17 cars, including two handicapped spaces, and van/shuttle parking would be provided between the new building and church. The building would be set back by ten to fifteen feet from the toe of the slope where a catchment wall would be built; additional slope stabilization measures would be similar to those proposed by the project.

Alternative B would generate an estimated 250 average weekday trip ends -- 125% of project-generated traffic and equivalent to traffic generated by about 28 to 33 single family homes. About 45 trips would be made during the PM peak hour (between 2:00 and 3:30 PM). This alternative would result in a 0.02 (300-block of Ulloa) to 0.03 (200-block of Ulloa) increase in the TIRE Index. An increase of this magnitude is not considered noticeable.

Construction would take slightly longer than the project, but development-generated noise would not differ from the levels expected with the project. Traffic-generated noise levels would be of the same approximate magnitude as from the project.

The Alternative B building would be one story taller than the project. It would be higher than the steeple of the existing church and higher against the site's hillside backdrop than the project but would not break the profile of the hillside. Slope stabilization measures (and their visibility) would be identical to those associated with the project except that measures implemented on lower hillside elevations would be blocked by the building.

ALTERNATIVE C -- 107-UNIT RESIDENTIAL CARE FACILITY

Alternative C would result in a building about 11% smaller with 11% fewer units (107 bedrooms/107 units) than the proposed project (120 units maximum). The building would consist of three stories over subsurface parking. No new development is assumed east of the existing church near the eastern site boundary other than improving the driveway (repaving, providing pedestrian access, and landscaping). The garage would provide 43 parking spaces for cars and one truck loading space; outdoor parking would be provided for 17 cars between the new building and church. The northern facade would be located ten to fifteen feet from the toe of the slope, a concrete catchment wall would be built at the toe,

and the same slope stabilization measures as proposed with the project would be implemented.

Alternative C would generate an estimated 180 average weekday trip ends -- 90% of project generated traffic and equivalent to traffic generated by about 20 to 24 single family homes. About 33 trips would be made during the PM peak traffic period (between 2:00 and 3:30 PM). This alternative would result in a 0.02 increase in the TIRE Index (on both the 200- and 300-blocks of Ulloa) which is not considered noticeable.

Construction would take a similar (or slightly shorter) time than the project, but development-generated noise would not differ from the levels expected with the project. Traffic-generated noise levels would be of the same approximate magnitude as from the project.

The three-story building assumed by Alternative C would not be as high as the building proposed by the project, and the steeple of the existing church would be higher than the roof of the residential care facility. The lower building height would block less of the site's hillside backdrop than the project or Alternative B and would not break the profile of the hillside. Slope stabilization measures (and their visibility) would be identical to the project.

ALTERNATIVE D -- SINGLE-FAMILY RESIDENTIAL DEVELOPMENT

Alternative D assesses two residential development concepts from among potential approaches available, although altogether different development plans could be considered for the site.

Alternative D-1 assumes development of 13 detached dwellings in accordance with the site's RH-1(D) zoning, all with access from Ulloa Street. Alternative D-1 assumes that each unit would be 3,500 square feet in size and contain up to five bedrooms. Slope stabilization of the bench development area would consist of the following measures:

- Scaling loose rocks from the prominent bedrock outcrop and draping and securing wire mesh to the slope (but not installing rock bolts).

- Flattening the overhanging or steep slopes in the western portion of the site.

- Building a six- to eight-foot high reinforced concrete catchment wall at the toe of the major slope.

Alternative D-2 assumes development of 31 attached and detached units in accordance with PUD zoning provisions, consisting of 28 attached dwellings with access from Ulloa Street and three detached dwellings fronting on Edgehill Way. Alternative D-2 assumes that attached units would be 1,500 square feet in size with three bedrooms each and two units built per lot while detached units would be 2,500 square feet in size with four to five bedrooms each. Slope stabilization of the site would consist of the following measures:

- Building an underpinning wall along Edgehill Way which would consist of drilled, cast-in-place concrete piers connected by a reinforced concrete grade beam and tied back across the road.

- Scaling loose rocks off the prominent bedrock outcrop and installing rock bolts and wire mesh below the underpinning wall (mesh would be draped only over the rock cliff west of the wall).

- Flattening the overhanging or steep slopes in the western portion of the site.

- Building a six- to eight-foot high reinforced concrete catchment wall at the toe of the major slope.

Alternative D-1

Alternative D-1 would generate an estimated 130 average weekday trip ends (65% of project-generated traffic), about 13 of which would be made during the PM peak hour (5:00 to 6:00 PM). This alternative would result in a 0.02 increase in the TIRE Index (in both the 200- and 300-blocks of Ulloa Street) and no increase on Edgehill Way where there would be no new development.

Construction of Alternative D-1 development would take less time than other alternatives or the project, but development-generated noise would not differ from the levels expected with the project. Traffic-generated noise levels would be similar to those of the project.

Alternative D-2

Alternative D-2 would generate an estimated 240 average weekday trip ends (120% of project-generated traffic), about 24 of which would be made during the PM peak hour (5:00 to 6:00 PM). This alternative would result in a 0.02 (in both the 200- and 300-blocks of Ulloa Street) to 0.04 (on Edgehill Way with Garcia Street)

increase in the TIRE Index. An increase of this magnitude is not considered to be noticeable.

Construction of Alternative D-2 development would take a similar (or slightly shorter) time than the project, but development-generated noise would not differ from the levels expected with the project. Development on Edgehill Way primarily would occur out of the line-of-sight of existing Edgehill Way homes. Traffic-generated noise levels would be similar to those of the project.

Residential development under Alternatives D-1 and D-2 could appear similar in character with surrounding residential development but would not necessarily appear to be a visually logical extension of the neighborhood. The resulting horizontal band of development would appear to be a continuous, unbroken mass with Alternative D-2's attached units; Alternative D-1's detached units would break up the volume of this band with side yards. The three detached units on Edgehill Way assumed by Alternative D-2 could be prominent visually.

II. PROJECT DESCRIPTION

A. PROJECT SPONSOR'S OBJECTIVES

The proposed project is the construction of a 120-bedroom residential care facility for senior citizens on the 135,900 square-foot undeveloped portion of the site at 300 Ulloa Street. The project would include common facilities and off-street parking and would involve hillside stabilization and landscaping; it would not alter the existing 7,700 square-foot church on the site.

The objective of the project sponsor, Urban Holdings, Inc., is to build housing for senior citizens who have limited ambulatory ability but can live moderately independent lives with basic assistance. According to the sponsor, the project would serve seniors who wish to remain in the vicinity of the site when they are no longer able to live in their present homes.

B. PROJECT LOCATION

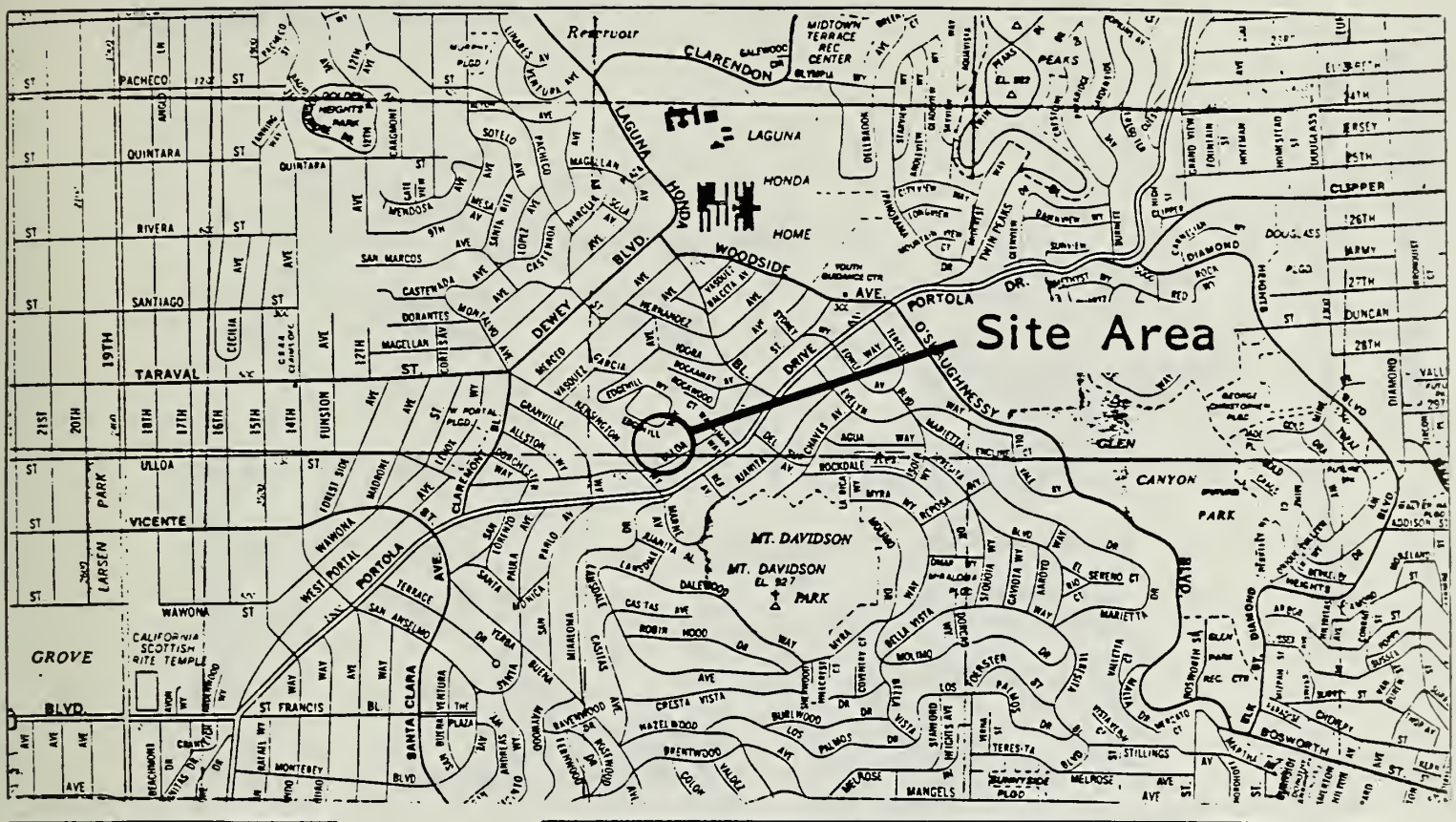
The site, Lot 7 in Assessor's Block 2876, is an approximately 3.3-acre (143,600 square-foot), irregularly-shaped lot located on the north side of Ulloa Street immediately west of Waithman Way in the West Portal area of San Francisco (see Figure 1, page 11). It extends from Ulloa Street uphill to Edgehill Way and comprises a long-abandoned rock quarry which is characterized by exposed rock walls and fallen debris. The First Church of the Nazarene is on the site.

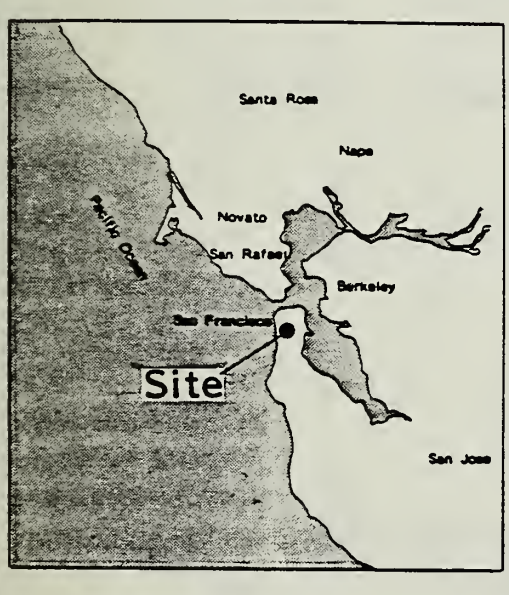
The site lies within an RH-1(D) (Single-Family Detached) zoning district and 40-X height and bulk district. RH-1(D) zoning permits single-family homes with side yards as required by Section 133 of the City Planning Code; residential care facilities for seven or more persons are permitted within RH-1(D) districts with Conditional Use authorization by the City Planning Commission.

C. PROJECT CHARACTERISTICS

Project characteristics are summarized in Table 1, page 12, are illustrated in plans and elevations in Figures 2 through 4, pages 13 through 15, and are described below.

The project would involve construction of a 93,660 square-foot building with a 27,930 square-foot footprint. New development would cover 19% of the site; total site development (the project and church) would result in 25% site coverage.





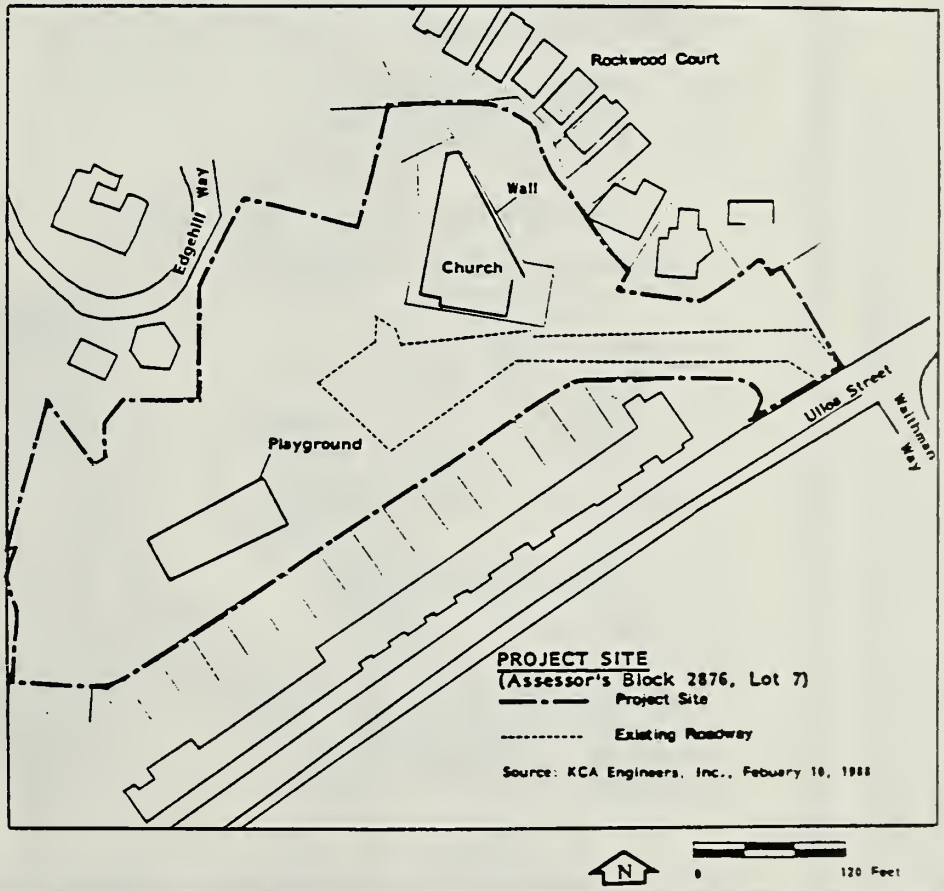


FIGURE 1 - PROJECT LOCATION

Source: Map Copyrighted 1979 by the California State Automobile Association.
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TABLE 1

Project Characteristics

	Existing Church		Proposed Project		Total Site
Proposed Land Uses (gross square feet)					
• Developed Area (building footprint)	7,700	+	27,930	=	35,630
• Landscaped Open Space			35,920		35,920
• Hillside Open Space (stabilized)			55,630		55,630
• Access and Parking (paved)			16,420		16,420
Total Site Area	7,700	+	135,900	=	143,600
Building Area (gross square feet)					
• Residential Area			67,600		
• Enclosed Common Area			12,500		
• Enclosed Parking			13,560		
Total Building Area	7,700	+	93,660	=	101,360
Proposed Off-Street Parking (number of spaces)	40	+	21	=	61
Location of Off-Street Parking					
• Garage	-		44		44
• Outdoor	17		-		17
Other Off-Street Parking:					
• Van/shuttle (outdoor)	-		1		1
• Truck loading (garage)	-		1		1
Building Height (feet)	40		± 30.5 a/		-
Bedrooms/Housing Units (maximum)	-		120		120
Residents (estimated)	-		± 140 b/		± 140
Employees	1		26		27

a/ Average height as measured in accordance with City Planning Code (Section 102.11(c)).

b/ Based on an estimated average of 1.2 persons per unit, rounded.

Source: Warner Schmalz, Architect, and Urban Holdings, Inc.

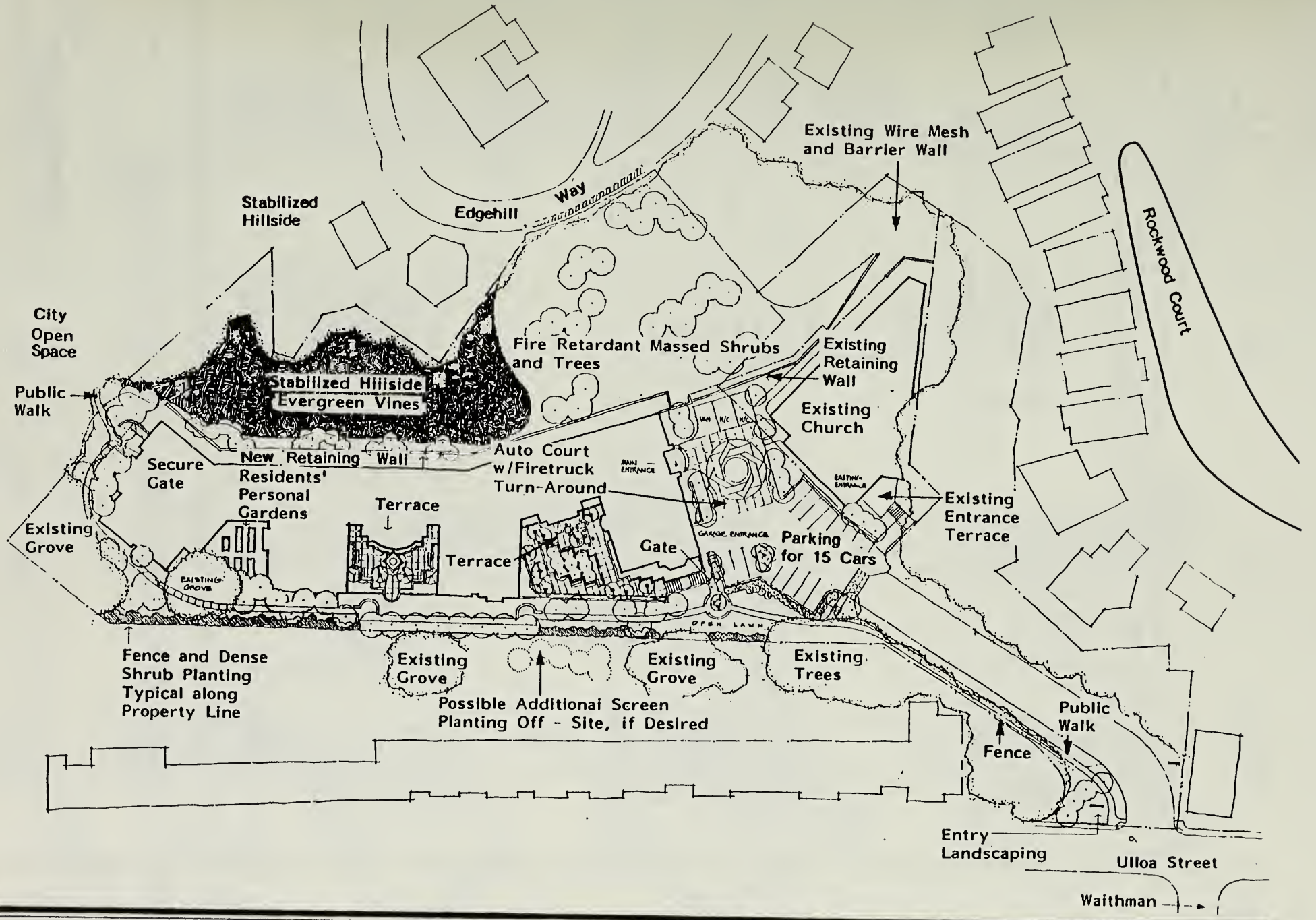
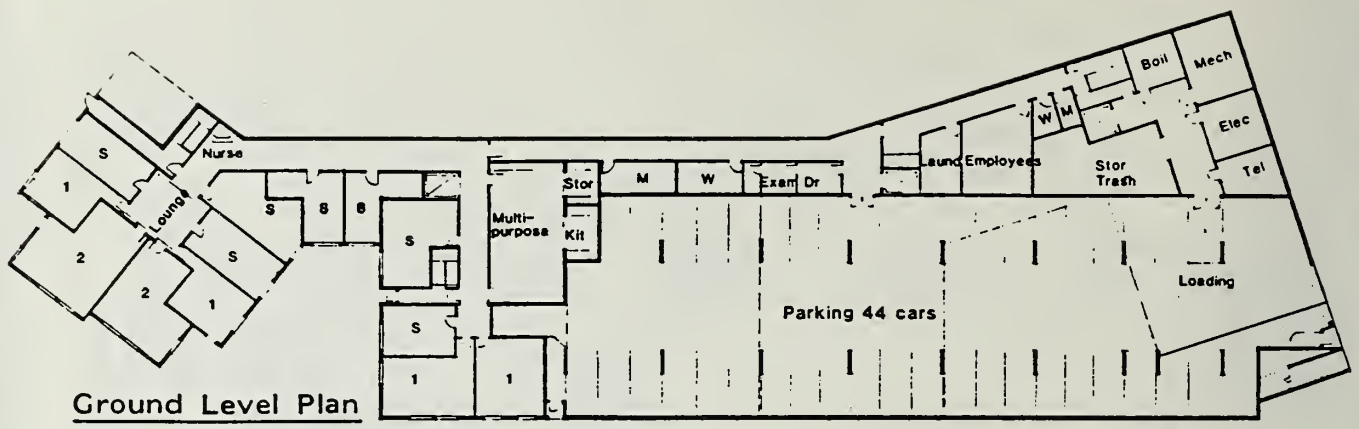


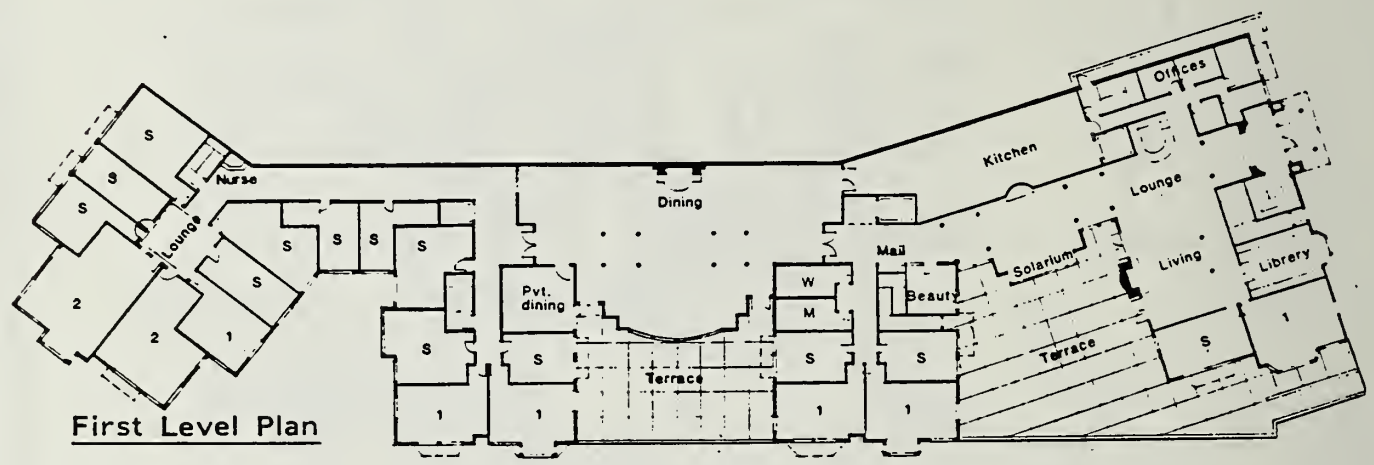
FIGURE 2 - CONCEPTUAL SITE PLAN -- PROPOSED PROJECT

Source: Warner Schmalz, AIA Architect, October 1998

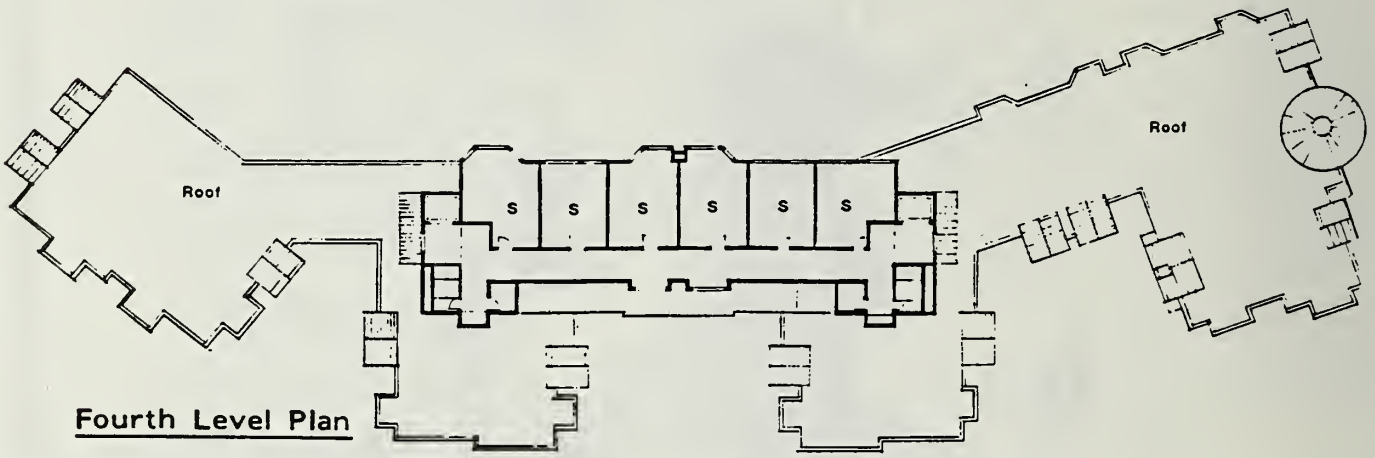
0 120 Feet



Ground Level Plan



First Level Plan



Fourth Level Plan

FIGURE 3 - GROUND LEVEL, FIRST LEVEL, AND FOURTH LEVEL PLANS

S = Studio
1 = 1 Bedroom
2 = 2 Bedroom Unit

Source: Warner Schmalz, AIA Architect, October 28, 1988

N

0 80 Feet

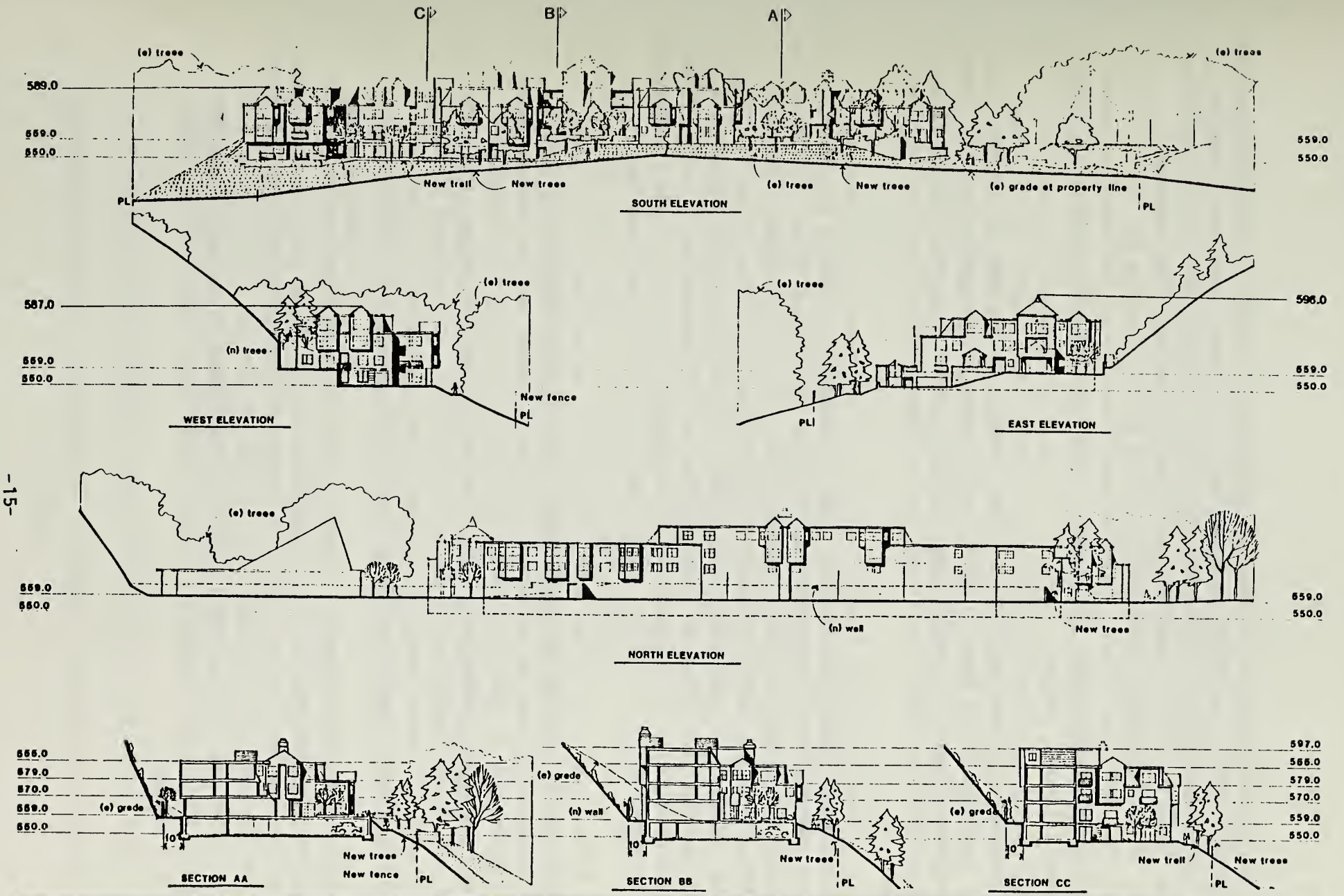


FIGURE 4 - ELEVATIONS

Source: Warner Schmalz AIA Architect, October 28, 1988

N

0 80 Feet

The project would contain a maximum of 120 bedrooms in studio, one-bedroom, and two-bedroom units. A 114-unit configuration currently is proposed (73 studios, 35 one-bedroom, and six two-bedroom units), but the exact mix of unit types has not been finalized. Units would range in size from about 280 square feet (studio) to 800 square feet (two-bedroom unit) with an average size of approximately 400 square feet. Each unit would have a full bathroom; no cooking facilities would be provided. The sponsor estimates that rents would range from $1,650 to $2,850 per month.

Other proposed facilities would include both common and private dining rooms, kitchen, lounges, living room, library, crafts' room, beauty parlor, laundry, and administrative offices. A nurse's room would be provided on each floor to store medication for dispensing to residents, but no medical or nursing care would be provided.

According to the sponsor, the project would be designed primarily for single residents, although some units could accommodate couples. Using an average of 1.2 persons per unit, the sponsor estimates that the project's total residential population at full occupancy would be approximately 140 people. All residents would be required to be 62 years old or older; the project sponsor expects that the typical age of residents would range from 78 to 85 years old. A housekeeping staff of approximately 26 people would be employed on the site, of whom a maximum of 15 employees would be expected to be working on-site at any one time.

Access to the project would follow the alignment of the existing site driveway from Ulloa Street. A total of 61 off-street parking spaces would be provided. The project's grade-level garage would provide 44 spaces, and an outdoor plaza would accommodate 17 cars, including three spaces reserved for handicapped parking. One truck loading space would be provided in the garage, and parking for one van shuttle vehicle would be provided outside. Of the total 61 off-street spaces, 21 spaces would be allocated to the project and 40 spaces, including 23 garage spaces, would be reserved for use by the existing church.

According to the project sponsor, trucking firms would be instructed not to use Ulloa Street when leaving the site. In addition, two to three van trips would be made per day and would serve specific purposes on given days (doctors, shopping, etc.); the van would not provide "taxi" service on demand. The sponsor also proposes to build a traffic barrier near 320 Ulloa Street in response to accident concerns of that home's residents but would need Department of Public Works' approval to do so.

The average building height of the project as currently designed would be 30.5 feet, as measured in accordance with the City Planning Code (Section 102.11(c)); curbs, gutters, and roof parapet details could add six inches to one foot to the building's height. No continuously vertical height (along one plane) would exceed 40 feet, the highest point of the existing church's steeple.

The proposed building would be set back 23 feet from the southern site boundary and 25 feet from the western site boundary. Lateral setbacks of 65 to 130 feet would be provided between the building and the site's irregular northern boundary (65 to 115 vertical feet uphill from the bench). The eastern facade would be set back about 65 feet from the existing church. Parking and access would be provided within that setback area. No new development is proposed east of the church near the eastern site boundary.

The project would be a concrete frame, Type I (Fire Resistive) building. It would consist of a partially excavated ground level (covering the entire building footprint) and two to four stories above grade. Portions of the first and second stories would be set back by about 15 to 45 feet at three locations on the south, creating U-shaped structures around outdoor private open space. The third story would be stepped back another five to twenty feet from the south facade, and the fourth story would cover the central portion of the building. No top floor development is proposed over the outer building wings.

Of the 93,660 square feet of new building area proposed:

- Seventy-two percent (67,600 square feet) would be devoted to residential use;
- Thirteen percent (12,500 square feet) would consist of enclosed common area; and
- Fifteen percent (13,560 square feet) would constitute the enclosed, 44-space parking garage.

Proposed uses of the remaining 107,970 square feet (75% of the site not developed with buildings) would include:

- Stabilized open space on the site's hillside (55,630 square feet or 39% of the site).
- Paved parking and circulation (16,420 square feet or 11% of the site).
- Landscaped open space accessible to the public, including a trail along the

site's southern boundary to the City-owned open space west of the site (35,920 square feet or 25% of site area). (Another 6,200 square feet of landscaped terraces, included with in the building footprint area, would provide private open space for use by project residents.)

SLOPE STABILIZATION MEASURES PROPOSED AS PART OF THE PROJECT

The project would involve alteration of the site's existing slopes, including removal of vegetation (including about 35 trees with diameters larger than six inches), clearing loose and weak rocks (about 12,000 cubic yards), reshaping and stabilizing slopes, installing rock bolts, planting new landscaping, covering portions of the slope with wire mesh, and building a six- to ten-foot high catchment wall at the final toe of the slope. (The proposed building would be set back ten feet south of the wall.) These features of the project are described below in terms of design, construction methodology, and performance objectives. Stabilization measures are illustrated conceptually in sketches and photographs in Figures 5 through 11, pages 19-27; the locations where these measures are proposed to be implemented on the site are shown in plan (Figure 5, page 19) and elevation (Figure 6, page 20).

- Remove Loose Rock Masses and Install Rock Bolts (Measure A, Figures 5 and 6, pages 19-20)

  The purpose of this measure would be to remove masses of rock which already have been weakened along pre-existing joint systems by the weathering process, accelerated locally by root action. A typical, weakened rock mass on the steep bluff in the central part of the site is shown in Figure 7, page 21. Loose blocks of rock would be removed, either mechanically or by hand, after which the remaining bluff would be stabilized by installing a pattern of rock bolts and wire mesh designed to anchor the rock mass to the hillside (see Figure 8, page 22). An example of this technique is visible on the slope behind the existing church at the eastern end of the site (see Figure 7, page 21).

  The rock bolting process would be expected to stabilize the steep rock bluff portion of the site and reduce to an acceptable level the potential for the sudden movement of large rock masses downslope. Incorporating wire mesh into the stabilization system would knit the entire rock-bolted zone together so that even if a block of rock were to dislodge, its movement would be restrained. Rock bolting is a conventional form of rock stabilization for slopes similar to those on the site and on the site

Legend:

A - Remove Loose Rock Masses, Install Rock Bolt(s)
B - Scale Slope of Loose Material
C - Flatten or Shape Crest of Slope
D - Drape Slope with Wire Mesh Secured to Slope
E - Construct Catchment Wall
F - Underpin Edgehill Way (Alternative D-2 only)

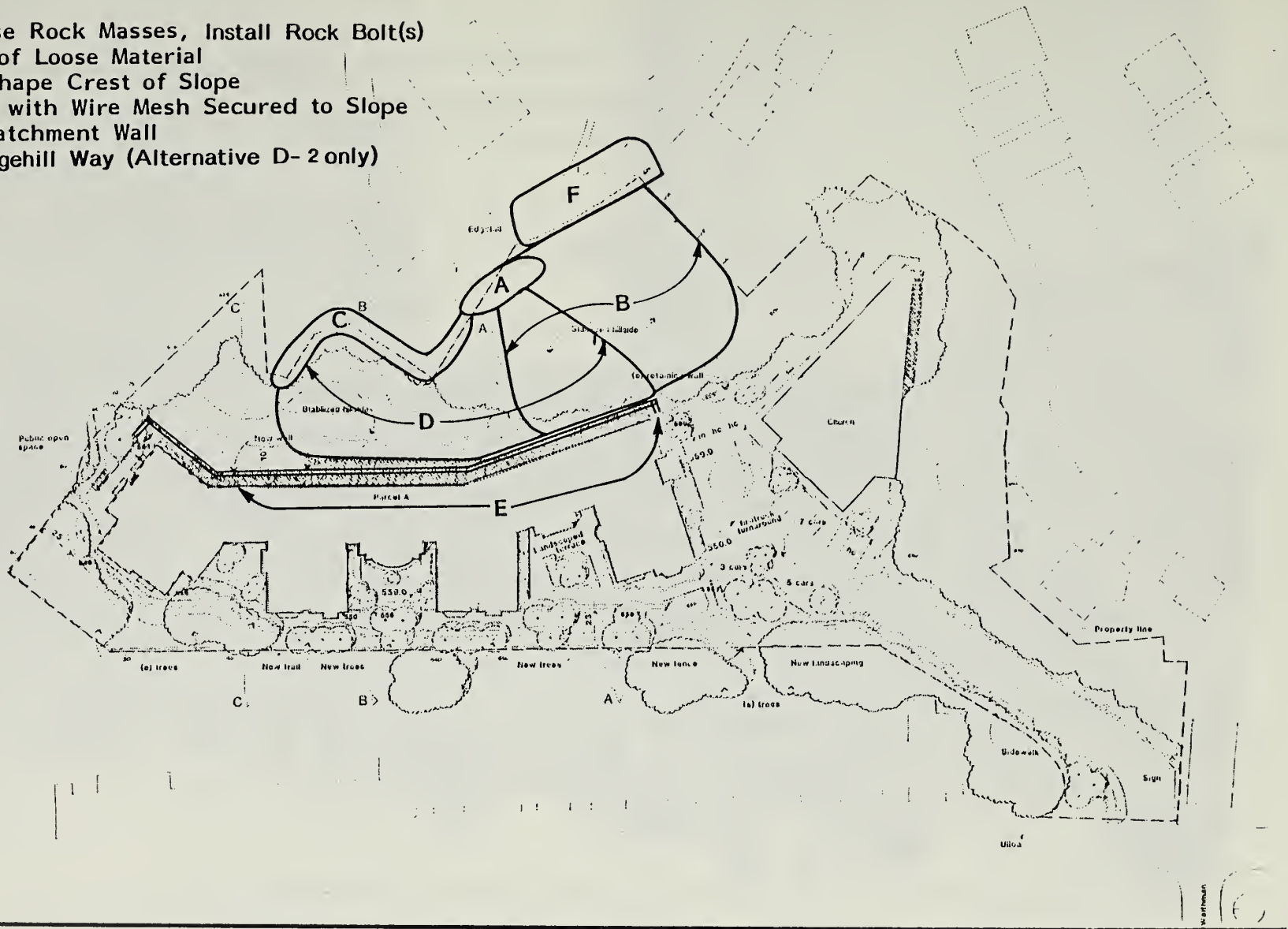


FIGURE 5 - SITE PLAN -- SLOPE STABILIZATION AREAS

Source: Dames and Moore, January 1989

0 80 Feet

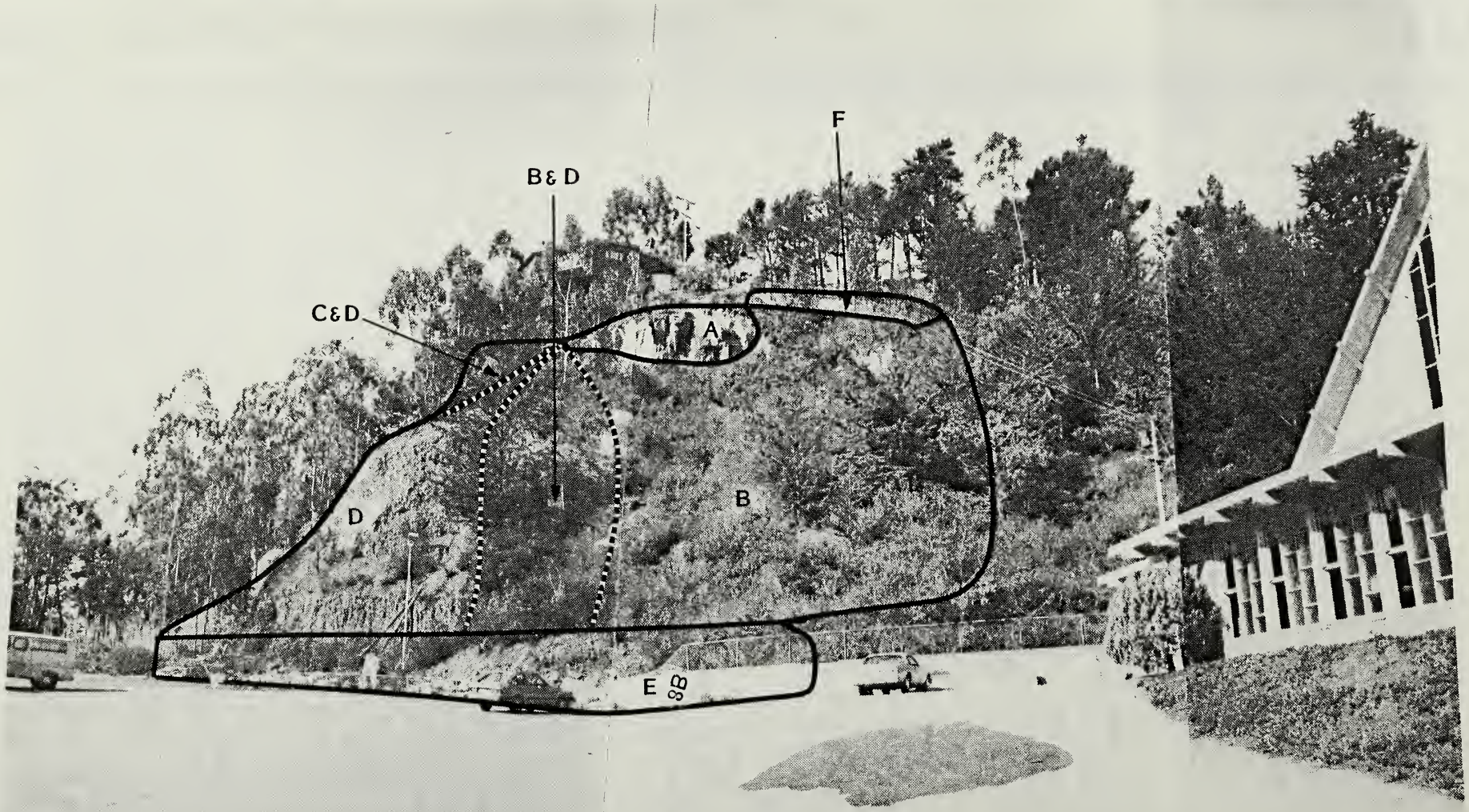


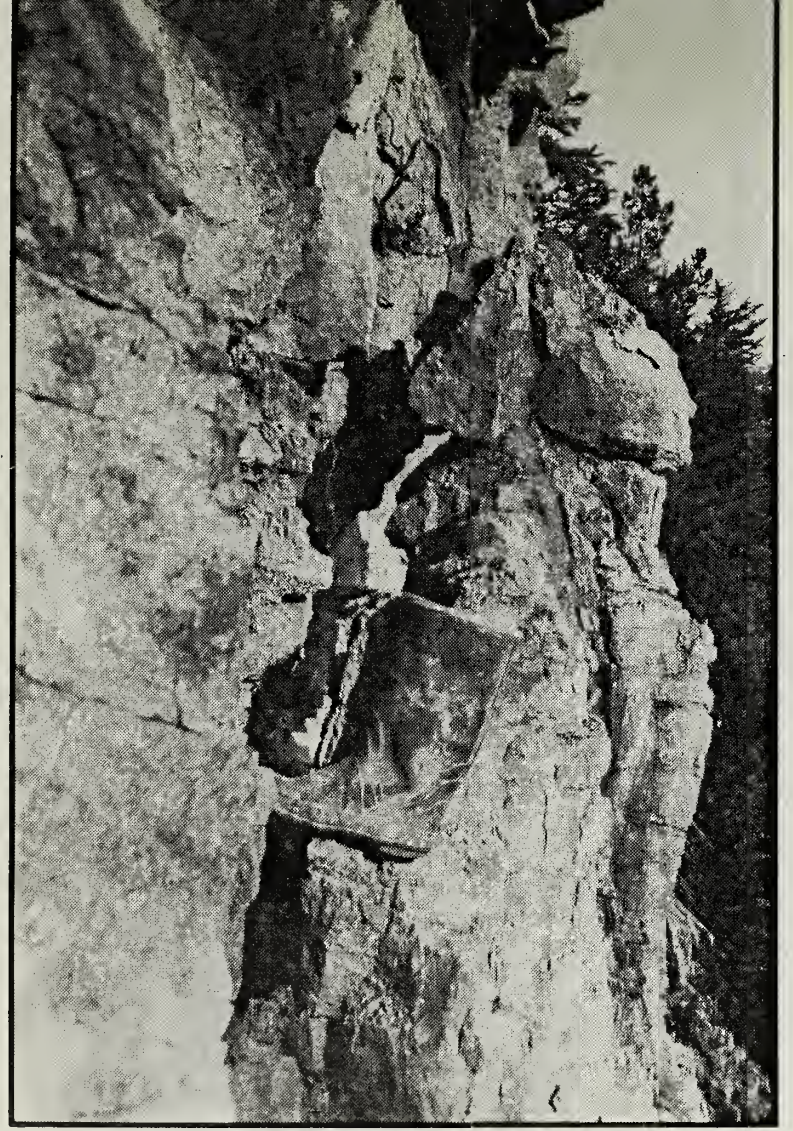
FIGURE 6 - PHOTOGRAPH -- SITE SLOPE STABILIZATION AREAS

Partial Northwest View of the Slope to be Stabilized with Outlined Areas Showing Location of Various Stabilization Measures.

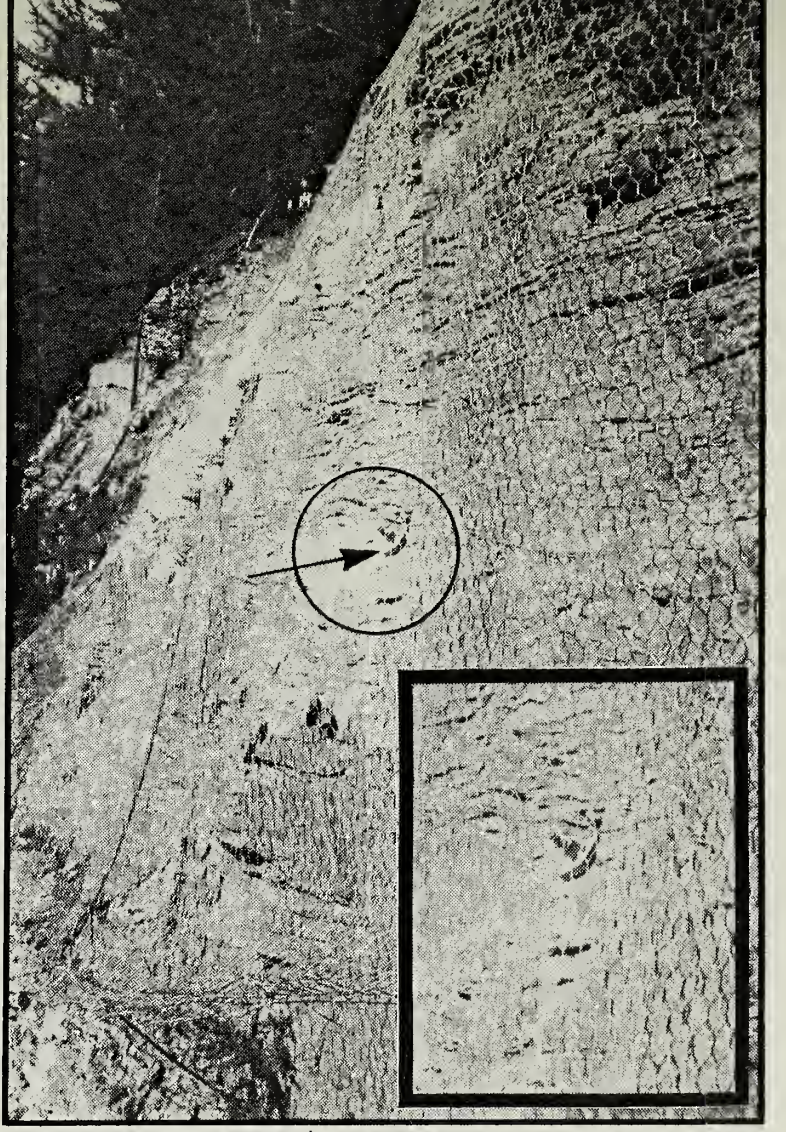
Legend:

A - Remove Loose Rock Masses, Install Rock Bolts
B - Scale Slope of Loose Material
C - Flatten or Shape Crest of Slope
D - Drape Slope with Wire Mesh Secured to Slope
E - Construct Catchment Wall
F - Underpin Edgehill Way (Alternative D-2 only)

Source: Dames and Moore, January 1989



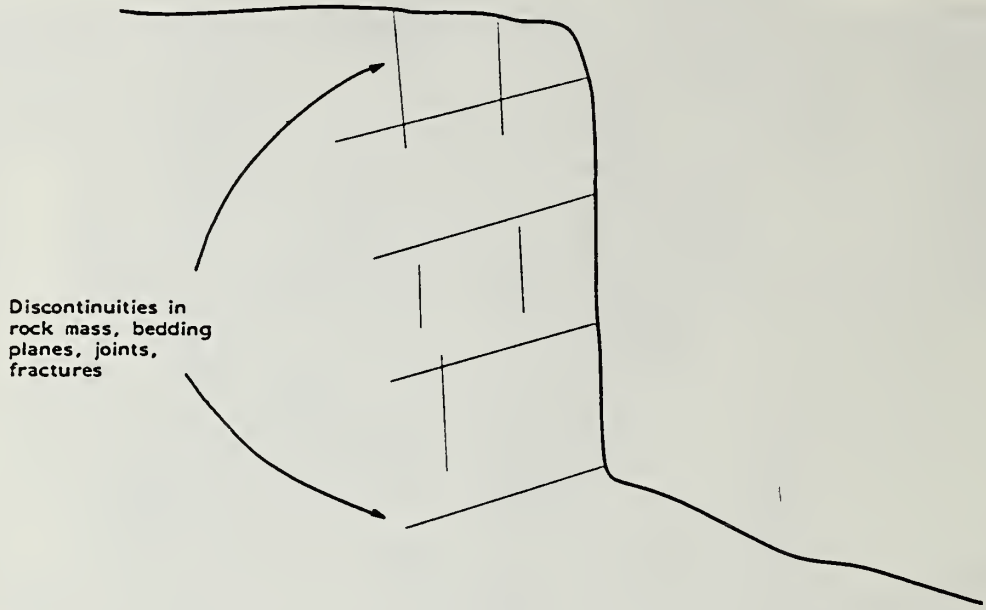
7A Unstable rock mass of massive chert bedrock along steep bluffs above the central part of the site (boot in center of photo provided for scale).



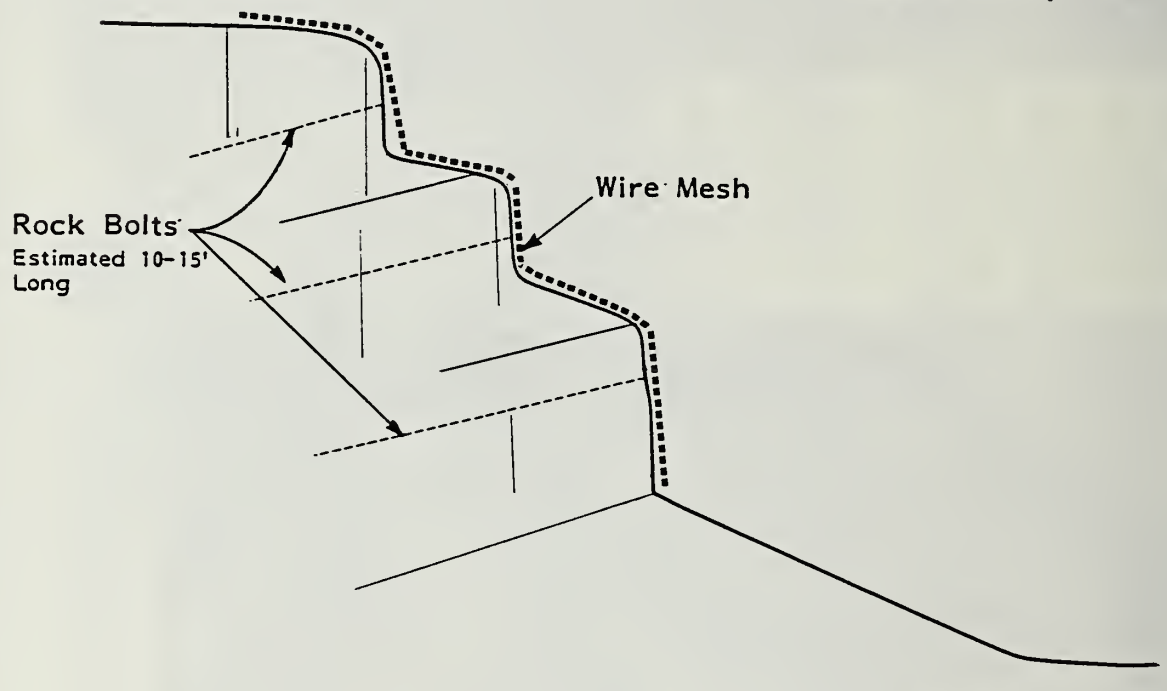
7B Existing Rock Bolt (shown at arrow) and wire mesh system behind the church structure at the eastern end of the project property.

FIGURE 7 - PHOTOGRAPH -- (A)UNSTABLE ROCK MASS (B) ROCK BOLT AND WIRE MESH

Source: Dames and Moore, January 1989



Existing Conditions



Proposed Final Conditions
(Schematic)

FIGURE 8 - SCHEMATIC ILLUSTRATION -- REMOVE LOOSE ROCK MASSES AND INSTALL ROCK BOLTS

Source: Dames and Moore

Not to Scale

itself, as noted above.

- Scale Slope of Loose Material (Measure B, Figures 5 and 6, pages 19-20)

  This measure would involve removing boulders or rock masses which have been dislodged from the slope above the bench. The purpose of this measure would be to eliminate the likelihood that these rocks would roll downslope and damage the project building. One of the larger boulders on the site which already has been dislodged and is resting on the slope below the massive chert bluff is shown on Figure 9-A, page 24.

- Flatten or Shape Crest of Slope (Measure C, Figures 5 and 6, pages 19-20)

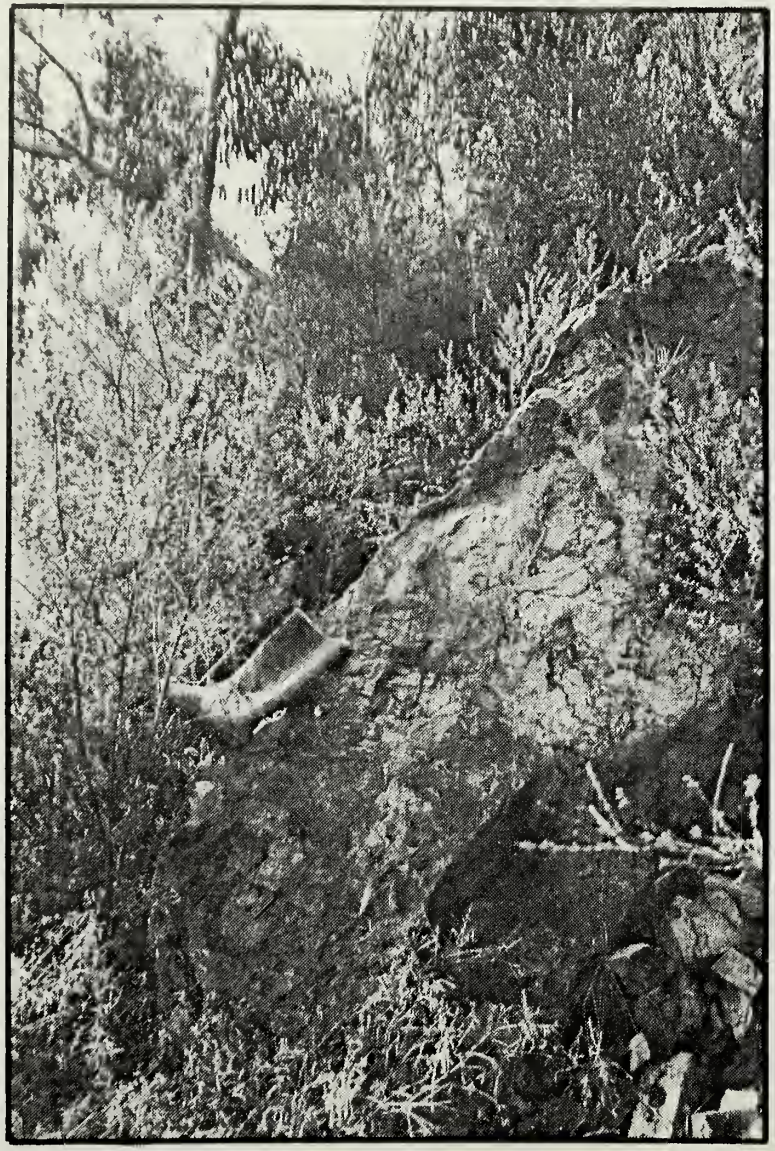
  Certain areas of the site, particularly the western portion, contain zones where overburden soils, weathered rock, and vegetation are relatively steep or actually overhang the underlying cut slope. These zones are susceptible to progressive failure which would result in an accumulation of soil and rock debris at the toe of the slope. In order to minimize the potential impacts of this phenomenon and reduce long-term maintenance requirements, the slope crest would be "shaped", either mechanically or by hand, to a more stable configuration. This work would extend onto adjoining property uphill from the site, subject to the owner's agreement, or could be confined to the site. Figure 9-B, page 24, shows existing conditions; Figure 10, page 25 illustrates existing and final conditions schematically.

- Drape Slope with Wire Mesh Secured to Slope (Measure D, Figures 5 and 6, pages 19-20)

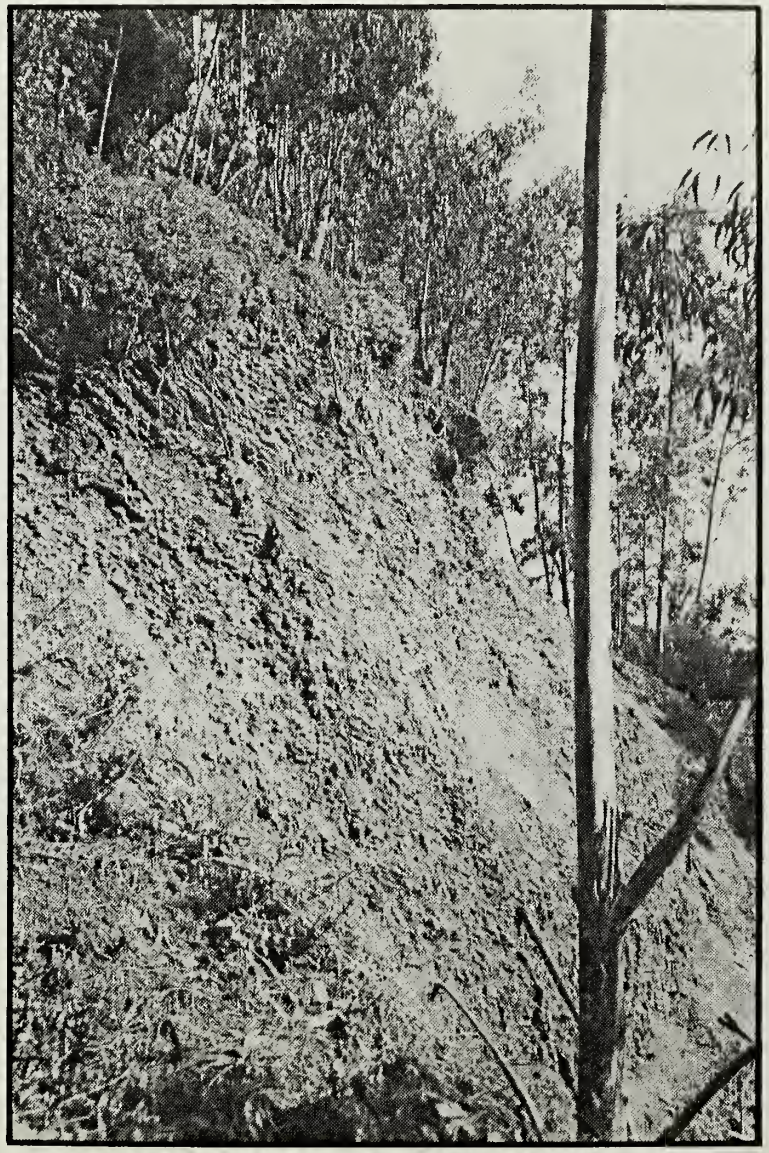
  This measure would be used locally for two conditions in order to mitigate the impacts of continued slope degradation:

  -- Over steep slopes of thinly bedded chert in the western portion of the site. The presence of mesh would retard the effects of ravelling or sloughing of the weathered rock mantle and provide a support system for vegetation, such as vines, proposed to be planted as landscaping.

  -- Over the chert bluffs in stabilization scenarios which would not include rock bolting. The presence of the mesh would restrain dislodged blocks of rock and prevent them from suddenly rolling downhill.



9A Boulder that has already been dislodged from the massive chert bluff (boot provided in photo for scale).



9B Near-vertical slope at the top of exposed thinly bedded chert in the western portion of the site.

FIGURE 9 - PHOTOGRAPH -- (A) LARGE DISLODGED BOULDER AND (B) NEAR VERTICAL SLOPE

Source: Dames and Moore, January 1989

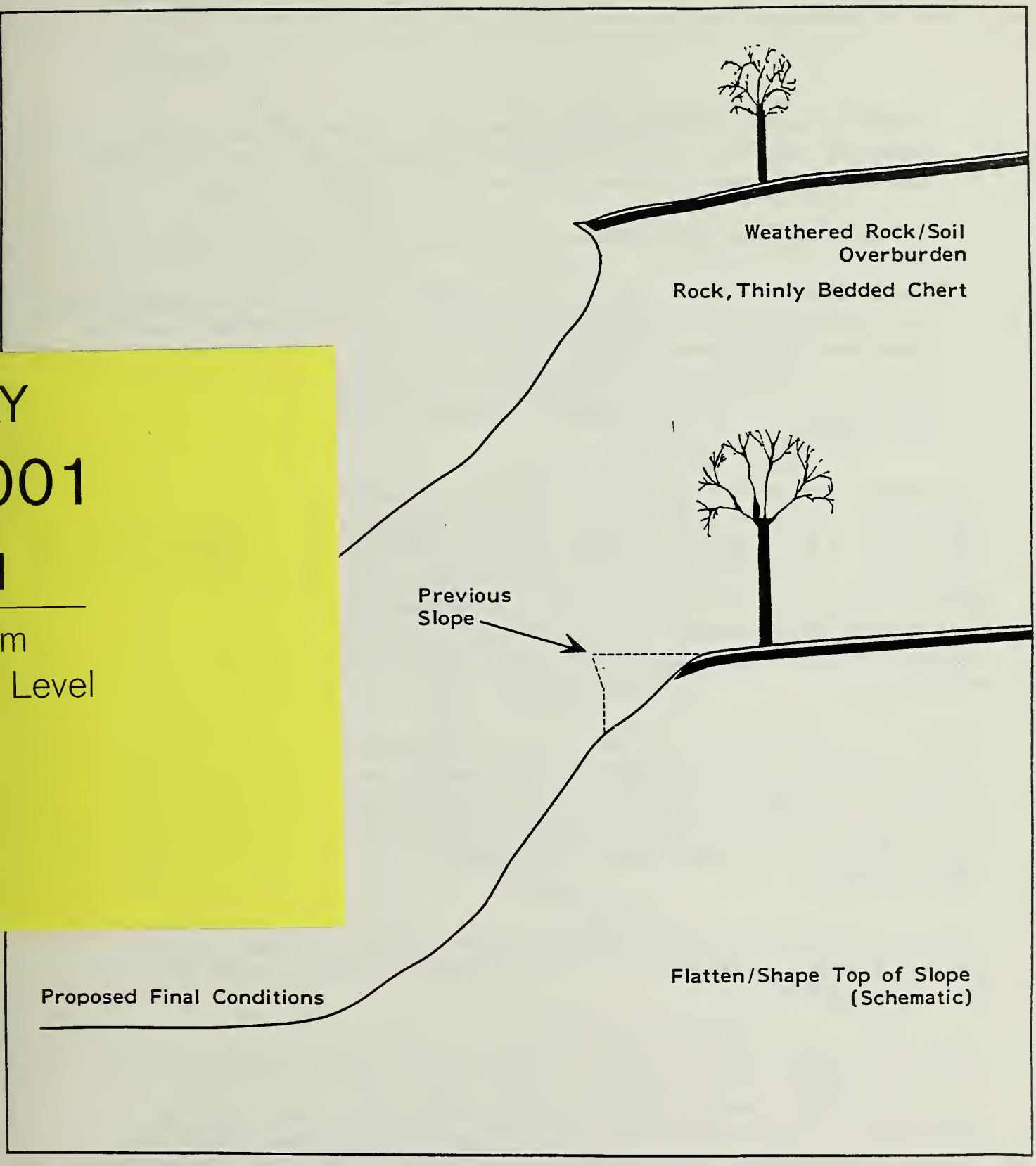


FIGURE 10 - SCHEMATIC SKETCH -- WEATHERED ROCK/SOIL OVERBURDEN AND FLATTEN/RESHAPE TOP OF SLOPE

Source: Dames and Moore

Not to Scale

These two options are illustrated schematically in cross section form in Figure 11, page 27, and an example of this stabilization technique (behind the existing church) is shown in Figure 7-B, page 21.

- Construct Catchment Wall (Measure E, Figures 5 and 6, pages 19-20)

  The proposed project would include construction of a ten-foot high catchment wall at the toe of the reconfigured slope to protect the developed area from slope ravelling/sloughing or rockfall. A reinforced, concrete catchment wall at the toe of the slope would back up the project's other stabilization techniques by providing an additional measure to reduce the impacts from slope failures.

The sponsor may contract separately for slope stabilization and project construction. Implementation would be phased to complete slope stabilization and construction of the proposed retaining wall first, followed by construction of the building. A long-term program to maintain the stabilized slopes would be established by the sponsor as part of the project and would include periodic inspections of stabilized areas, removal of debris accumulated behind the retaining wall, and regular inspection (and clearing, as needed) of drainageways.

Construction of the project's partially excavated basement would involve removal of up to 7,000 cubic yards of material which the applicant estimates would take one month and require 500 two-way truck trips. According to the sponsor, all earth material would be excavated using conventional construction equipment without blasting, and neither slope stabilization nor site excavation would require blasting.

A temporary construction fence would be installed along the southern property line during project construction, and a new property line fence would be built upon project completion.

The sponsor proposes to landscape the site with new vegetation both as a slope stabilization measure and to augment existing vegetation. Fire-retardant shrubbery and trees would be planted on the slopes which extend uphill to Edgehill Way, and evergreen vines would be planted on the slopes behind the project. The landscape plan proposes the installation of 130 or more new trees.

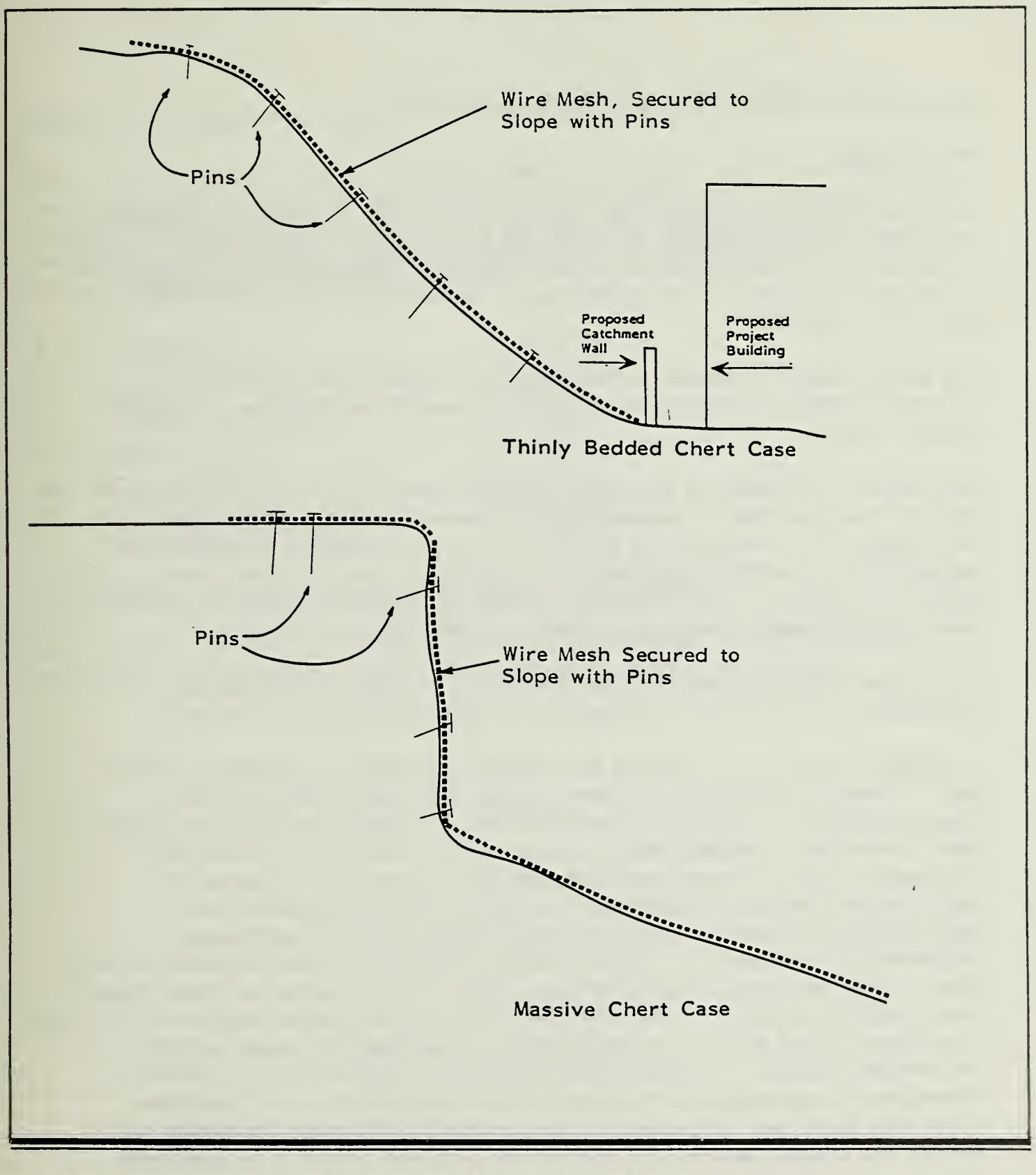


FIGURE 11 - SCHEMATIC SKETCH -- DRAPE WITH WIRE MESH

Source: Dames and Moore

Not to Scale

D. PROJECT APPROVALS, SCHEDULE, AND COSTS

APPROVALS

Following a public hearing on this Draft EIR before the City Planning Commission, responses to written and oral comments will be prepared; this EIR will be revised as appropriate and presented to the City Planning Commission for certification as to accuracy, objectivity, and completeness. No permits may be issued before the Final EIR is certified.

The project would be subject to Conditional Use authorization by the City Planning Commission which is required for residential care facilities for seven or more persons.

The project is proposed as a Planned Unit Development (PUD) under Section 304 of the City Planning Code. Consideration of a project as a PUD is provided for sites greater than one-half acre in size. As stated in the City Planning Code, the objectives of a PUD are to develop a project " ... as integrated units ... designed to produce an environment of stable and desirable character which will benefit the occupants, the neighborhood, and the City as a whole ... ".

The project sponsor proposes to map the site by creating a condominium subdivision for the church building only; no land subdivision is proposed.

In November, 1986, the voters of San Francisco approved Proposition M (Section 101.1 of the City Planning Code) which establishes eight Priority Policies. These policies are: preservation and enhancement of neighborhood-serving retail uses; protection of neighborhood character; preservation and enhancement of affordable housing; discouragement of commuter automobiles; protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership; earthquake preparedness; landmark and historic building preservation; and protection of open space. Prior to issuing a permit for any project which requires an Initial Study under CEQA or adoption of any zoning ordinance or development agreement, the City is required to find that the proposed project or legislation is consistent with the Priority Policies. The case report prepared as part of the City Planning Commission's consideration of the project sponsor's application for Conditional Use authorization and subsequent motion for the City Planning Commission will contain the analysis determining whether the proposed project is in compliance with the eight Priority Policies.

PROJECT SCHEDULE AND COSTS

After approval and issuance of building permits, construction would proceed in two phases with project completion expected in 16 to 18 months. The church would remain in use throughout the construction period. The estimated duration of each activity would be as follows, according to the order in which each would occur (some activities would occur concurrently):

- Site clearance — 0.5 months
- Slope stabilization — 3.0 months
- Excavation — 1.0 month
- Foundation preparation — 1.5 months
- Building erection — 8.0 months
- Exterior finishing — 4.0 months
- Interior finishing — 6.0 months
- Landscaping installation — 2.0 months

The project is planned to be completed and occupied in 1991.

The estimated construction cost is about $8,600,000.00 (1988 dollars), including excavation, building shell, interior improvements, and slope stabilization.

III. ENVIRONMENTAL SETTING

The site is located about 110 to 130 feet north of Ulloa Street, except for a 90-foot wide street frontage in the southeast corner where the site's driveway connects with Ulloa Street. The site's northern boundary abuts Edgehill Way, also for about 90 feet, but no vehicular access is provided. Within the site, a 60- to 100-foot wide, 300-foot long bench has been cut across the quarry face in an east-west direction. The bench's elevation is approximately 550 to 560 feet above sea level, and the hillside rises 115 to 125 feet behind the bench, almost vertically in some areas, to an uppermost site elevation of 675 feet at Edgehill Way. The eastern portion of this bench was developed in 1960 with the existing 7,700 square-foot church building and about ten designated parking spaces; the western portion of the bench is vacant but has been used in the past as a children's play area. The proposed residential care facility would be constructed on the western portion of the bench.

The site is surrounded by single-family residential development on the north, east, and south and abuts tree-covered public open space on the west. It faces Mt. Davidson to the south. Other nearby uses include St. Brendan's Church and School, one block east of the site on Ulloa Street, and the West Portal Neighborhood Commercial District, about five blocks west of the site. Portola Drive, a major east-west thoroughfare, is located one block south of the site.

A. GEOLOGY

TOPOGRAPHY

The project site is a former rock quarry and is located on a southeastern-facing slope of Edgehill Mountain, northwest of Mount Davidson. It contains several major topographic features:

- An essentially flat bench, as previously described.
- A steeply cut slope, the former quarry face, which rises 130 feet above the bench elevation at overall inclinations ranging between 1:1 and 1.5:1 (horizontal to vertical).
- A prominent bedrock exposure in the approximate center of the slope which is about 20 to 30 feet high and is almost vertical in places.
- A bowl-shaped depression in the cut slope near the western end of the site which exhibits a combination of quarrying activity and landsliding.

GEOLOGY

The site is underlain by chert bedrock of the Franciscan assemblage which occurs in two forms:

- Thinly bedded, with beds typically two to three inches thick and separated by shale interbeds. This chert usually is dark red in color.

- A variety which forms the prominent outcrop observed in the upper elevation of the central portion of the site (see Figure 12, page 32). This chert appears to be lighter, typically cream-colored or grayish.

The bedrock has been folded and faulted and is jointed, especially the thin-bedded sections. Bedding generally strikes northwest to southeast and dips from 20 to 40 degrees northeasterly.

Subsurface exploration of the site in 1981 involved ten test borings which were drilled to depths of 21 to 48 feet. [1] That investigation indicates that most of the level bench is cut in the bedrock but that fill and overburden soil lie on top of the bedrock in some areas. Three of the test borings located near the southern edge of the bench encountered fill and/or overburden material to depths ranging between four and sixteen feet.

The site lies within an area that has been designated as a Special Geologic Study Area in the Community Safety Element of the San Francisco Master Plan because of the possibility of landslide activity. Sections of the site reveal evidence of past erosion.

The closest active faults to the site are the San Andreas Fault, about 4.5 miles to the southwest, and the Hayward and Calaveras Faults, about 14 and 26 miles to the northeast, respectively. The project area is expected to experience groundshaking level D (strong ground shaking) during a major earthquake which potentially could trigger landslides and rockfalls. [2] The site is not within an area susceptible to liquefaction and subsidence.

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[1] Conducted by Don Hillebrandt Associates for a condominium project proposed on the site.

[2] URS/John A. Blume and Associates, Engineers, San Francisco Seismic Safety Investigation, June, 1974. Estimated intensity of future groundshaking in San Francisco is categorized in five levels, A (very violent) to E (weak).

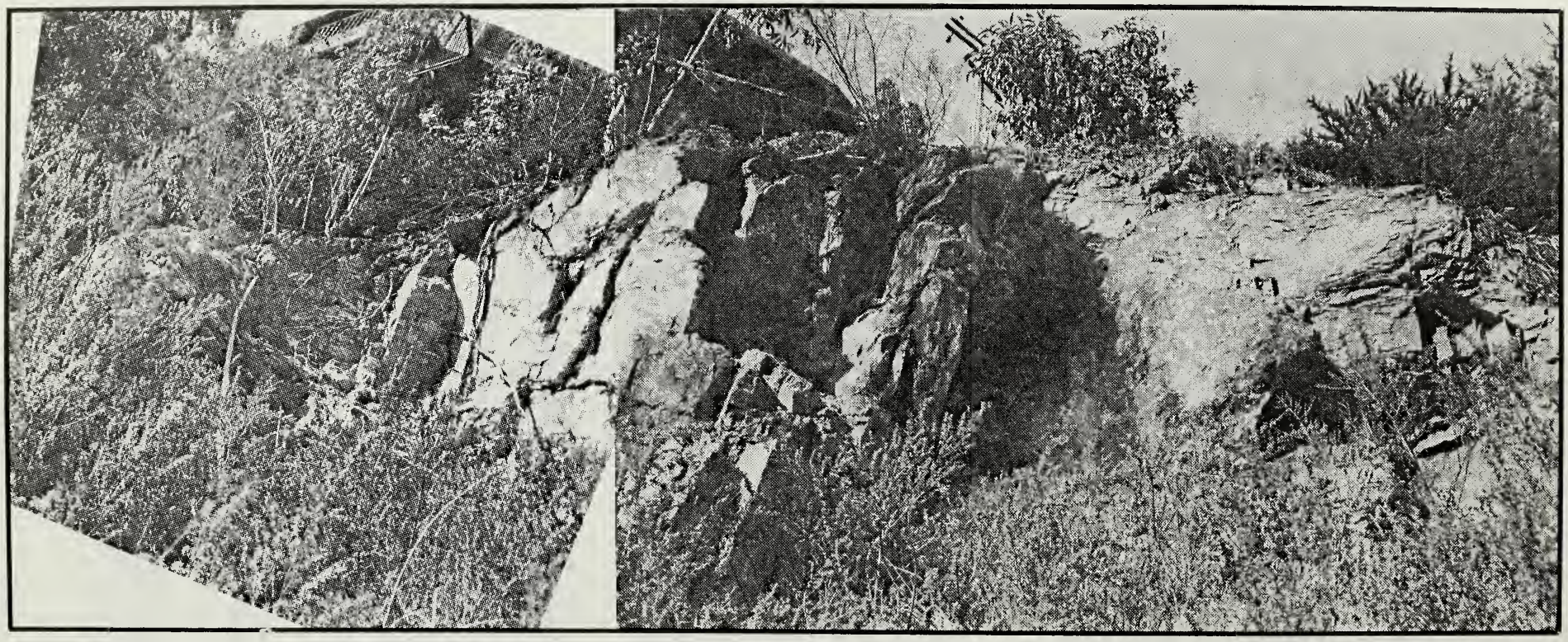

FIGURE-12- MASSIVE CHERT

Prominent Outcrop of Massive Chert Bedrock in the Upper Part of the Central Portion of the Site.

Source: Dames and Moore, January 1989

Scale is about 1" = 5'

GROUNDWATER

Information on groundwater at the site is limited. One of the test borings drilled in 1981 accumulated water at a depth of 35 feet after standing open two days; all other test borings were dry. This suggests that ground water is relatively deep at the site which is consistent with what would be expected on the basis of topographic and geologic conditions.

B. TRANSPORTATION, CIRCULATION, AND PARKING

A project transportation study has been prepared by an independent consultant and is available for public review in the offices of the Department of City Planning, 450 McAllister Street. The results of the study are incorporated by reference into this Draft EIR and are summarized herein.

EXISTING STREETS

Streets serving the site include Ulloa Street, Waithman Way, Portola Drive, and Laguna Honda Boulevard (see Figure 1, page 11). Ulloa Street, in the vicinity of the project site, is a 26-foot wide, one-way street that runs eastbound to Laguna Honda Boulevard. Waithman Way is one block long and connects Ulloa Street to Portola Drive. Laguna Honda Boulevard is a north-south street that forms a "T" intersection at Portola Drive. Portola Drive is a major four-lane east-west divided arterial street located one block south of Ulloa Street and connects Market Street with the southwestern portion of the City.

Traffic control along Ulloa Street includes a two-way (all way) STOP at Waithman Way, a four-way STOP at Kensington Way, and a five-way STOP at Laguna Honda Boulevard. Both Waithman Way and Kensington Way are controlled by STOP signs at Portola Drive; the center median on Portola Drive limits movements at both locations to right turns into or from Portola Drive. The Portola-Laguna Honda and Portola-Miraloma-Marne intersections are signalized.

The City's Master Plan designates Portola Drive as a "major thoroughfare". No other streets in the vicinity of the project site are designated by the Master Plan. Other streets in the vicinity of the site include Kensington Way, a 16-foot wide residential street, and Miraloma Drive, which, while residential in character, serves as a north-south route both for Muni buses and automobiles. Mount Davidson acts as a topographic barrier to travel in this area, and Miraloma Drive is one of the faster routes to get around this barrier.

Sidewalks are located on both sides of Ulloa Street, Waithman Way, Laguna Honda Boulevard, Portola Drive, and Kensington Way south of Ulloa Street. An elevated pedestrian bridge spans Portola Drive near Kensington Way. No bikeways are marked on streets adjacent to the project site.

Curbside parking is permitted on both sides of Ulloa Street except during street cleaning hours (9:00 to 11:00 AM Mondays on the north side and 1:00 to 3:00 PM on Tuesdays on the south side). Compared with other San Francisco neighborhoods, on-street parking appears to be light on Ulloa Street between Kensington Way and Waithman Way except on Sundays. [3] Heavier parking demand occurs on the 200-block of Ulloa Street (between Waithman Way and Laguna Honda Boulevard) during school arrival and departure times and church or school events.

TRAFFIC VOLUMES

Average daily traffic (ADT) volumes on Portola Drive are 28,500, based on counts conducted in October, 1987 and 1988. Counts on the 300-block of Ulloa Street indicate an ADT of 820 vehicles, while the ADT on the 200-block of Ulloa Street is 1,081. Comparison with 1981-82 counts shows that traffic on Portola Drive has been growing at an average rate of about 550 ADT per year, or 2.2% per year compounded. Traffic volumes on Ulloa Street appear to have grown by about 11% during the past six years, for an average growth rate of about 1.8% per year.

Based on studies of residents' perceptions of traffic, most people perceive that a street loses its residential character when traffic volumes exceed 3,000 to 5,000 vehicles per day, although some studies place this threshold as low as 1,200 vehicles per day. [4] The average daily traffic on the 200- and 300-blocks of Ulloa Street is lower than 1,200 vehicles per day. Traffic counts in 1988 suggest that traffic problems perceived on the 200-block of Ulloa Street may result from vehicles waiting to pick up children at St. Brendan's School. Some double parking occurs during the height of this activity, but the longest delays last no more than a minute or two.

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[3] Based on observations by the EIR traffic consultant during eight visits to the site at various times of day.

[4] Studies of residents' perceptions of traffic include: Salem Spitz, "How Much is Too Much (Traffic)," ITE Journal, May 1982; Federal Highway Administration, "Improving the Residential Street Environment," May 1981; Donald Appleyard, "Environmental Quality of City Streets: The Residents' Viewpoint," Highway Research Record 356, 1971; Colin Buchanan, Traffic in Towns, 1963; and Donald Appleyard, Livable Streets, 1981.

An analysis of vehicle speeds was conducted in the middle of the 200-block of Ulloa Street to assess whether there are speeding problems in this area. The analysis, conducted for two days, showed that fewer than three percent of all motorists exceeded the posted 25 MPH speed limit.

EXISTING TRAFFIC LEVELS OF SERVICE

Level of service, or LOS, is a standard traffic engineering methodology for measuring intersection operations (see page A.17). Levels of service were calculated for study area intersections based upon a somewhat conservative method which tends to underestimate capacity and overestimate congestion.

During the PM peak hour, the Portola-Laguna Honda intersection was found to be operating at level of service "D", within acceptable service levels. The signalized Portola-Miraloma-Marne intersection operates at level of service "B" during peak hours; this intersection has a protected left-turn (three-phase signal) for westbound Portola Drive traffic turning into Miraloma-Marne.

Portola Drive and Kensington Way form a "T" intersection which permits only right-turns into and right turns out of Kensington Way. The intersection operates at level of service "A" for traffic turning right out of Kensington Way.

TRAFFIC ACCIDENTS

Considering existing traffic volumes, the general area of the project site has a low accident frequency and rate. The City's Traffic Engineering Department recorded two accidents at the Portola-Laguna Honda intersection, three accidents at the Portola-Waithman intersection, and two accidents at the Ulloa-Waithman intersection between 1981 and 1985.

PARKING CONDITIONS

Less than 25% of on-street parking spaces appear to be used on weekdays along the 300-block of Ulloa Street, where parking is permitted on both sides of the street. About 25% of available parking appears to be used on Waithman Way. Use of parking on the 200-block of Ulloa Street varies, depending on time of day, but the highest use occurs near Laguna Honda Boulevard (in front of St. Brendan's School). During school release hours, more than 100% of the area's parking capacity is used because some double parking occurs, but cars leave quickly after

school release time. On-street parking use drops west of the school. On Sundays, parking is affected by attendance at area churches. Parked cars extend along most of the 200-block of Ulloa Street with fewer parked on the 300-block, none of which are associated with the First Church of the Nazarene.

EXISTING TRUCK TRAFFIC

Because of the residential character of the area immediately surrounding the site, truck traffic is associated mostly with serving residents' needs and includes package delivery, moving vans, utility trucks, and refuse pick-up trucks, the latter operating on a weekly basis. Through trucks serving various areas of the city use Portola Drive, the area's major east-west thoroughfare.

EXISTING PUBLIC TRANSIT SERVICES

Bus service near the site is provided by Muni's 43-Masonic and 48-Quintara lines which have stops on Portola Drive near Waithman Way, and near Portola Drive and Laguna Honda Boulevard (both stops just over a block from the site). The 43-line uses Laguna Honda Boulevard and serves Fort Mason, the Western Addition, the Haight, City College, the Balboa Park BART station, and southern neighborhoods. The 48-line connects the West Portal Muni Metro station (located about five blocks or 0.4 mile from the site) to the proposed project, to Noe Valley, San Francisco General Hospital, the Mission District, the 24th Street BART station, and the Caltrain station at 22nd Street. Muni Metro lines K, L, and M serve the West Portal and Laguna Honda stations, which are within walking distance of the project site.

Peak (commute) period passenger loads on both the 43 and 48 bus lines are moderate, but allow almost all passengers a seat. Off-peak travel permits all passengers to be seated. Muni Metro lines operate at or near capacity during the peak hour.

PEDESTRIAN TRAVEL

Most pedestrian activity in the project area is related to St. Brendan's School. The school's principal estimates that about 20% of the students walk to school. Most pedestrian activity occurs just before and just after school times. Pedestrian activity during the peak commute hour (5:00 to 6:00 PM) is lower than it is near the school release time (2:30 to 3:00 PM).

C. NOISE

A project noise study has been prepared by an independent consultant and is available for public review in the offices of the Department of City Planning, 450 McAllister Street. The results of the study are incorporated by reference into this Draft EIR and are summarized herein.

In order to quantify existing noise levels, noise measurements were made on November 29 and December 1, 1988 (between winter storms) at six locations. Based on these measurements, the existing ambient noise on the site would be in the range of 60 to 65 decibels (dB) outside an upper floor of the project and below an L_{dn} of 60 dB outside the first floor. [5]

In addition to providing information about the noise exposure of the site, the noise measurements provide information on the existing noise levels in the area against which project-generated impacts can be assessed. Background (or L_{90}) noise levels during late night-early morning hours are of particular interest because this is when rooftop mechanical equipment on the site would have the greatest potential for annoyance. The background noise level during the late night-early morning hours was as low as 48 dB behind the homes fronting Edgehill Way. The nighttime background noise level outside of homes fronting Rockwood Court is about 41 dBA. The homes fronting Edgehill Way and Rockwood Court overlook the site and would have the most exposure to noise generated on the site.

D. URBAN DESIGN

Except for the existing church, the site is undeveloped and is contiguous to single family homes (attached and detached) on three sides and undeveloped, City-owned open space on the fourth (western) side.

The site's visual character is defined by topography and vegetation, as well as its relationship to adjacent built and unbuilt properties. The most visually prominent feature of the site is its exposed rock face, created by quarrying which altered the original landform and which has been subjected to natural

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[5] Fundamental concepts of environmental acoustics are described in the Appendix, pages A.20 through A.25, where noise analysis terms are also defined. The City of San Francisco uses the L_{dn} noise descriptor to evaluate the compatibility of residential land uses with the outdoor noise environment. The L_{dn} is a single-number rating of the daily noise environment at a given location, and the calculation of the L_{dn} accounts for the increased sensitivity of people exposed to noise at night.

processes of rock and soil movement down the slope. The amount and type of vegetation which has become established on the site varies with elevation and with rock and soil conditions. The disturbed character of the site contrasts visually with the adjacent City open space.

The existing church is located on the man-made bench in the eastern portion of the site. When viewed from the south, the roofline does not break the profile of the hillside. Slope stabilization measures implemented by the church upslope from the building are visible from some on-site locations.

Due to its hillside location on Edgehill Mountain, the site is visible from both nearby and farther distant viewpoints, including from residential neighborhoods on lower elevations of Mount Davidson. All or part of the site is visible from intersections located on or south of Portola Drive, such as Portola-Rex, Jaunita-Rex, Portola-Marne, Juanita-Del Sur, and Chavas-Del Sur. The site is not visible from public areas of Mount Davidson. Existing views of the site are shown in Figures 13, 14, and 15, pages 39-41.

E. OPEN SPACE

The site lies adjacent to publicly-owned open space under the jurisdiction of the Recreation and Park Department. Commonly known as Edgehill Mountain Open Space, the area was acquired by the City between 1984 and 1985 and lies on the western slope of Edgehill Mountain. It contains mature eucalyptus trees, dense undergrowth, and footpaths. There are no signs which identify the open space to the public, nor is it extensively used at the present time. Public access to the area is available from Kensington Way, although there are no designated trails from Kensington Way. Access to the open space from the project site is via a cut in the fence separating the two parcels. According to Recreation and Park Department staff, there presently are no plans to develop the open space area.

FIGURE 13 - PHOTOGRAPH - VIEW OF PROJECT SITE LOOKING NORTH FROM PORTOLA DRIVE-REX AVENUE INTERSECTION

Source: Warner Schmalz

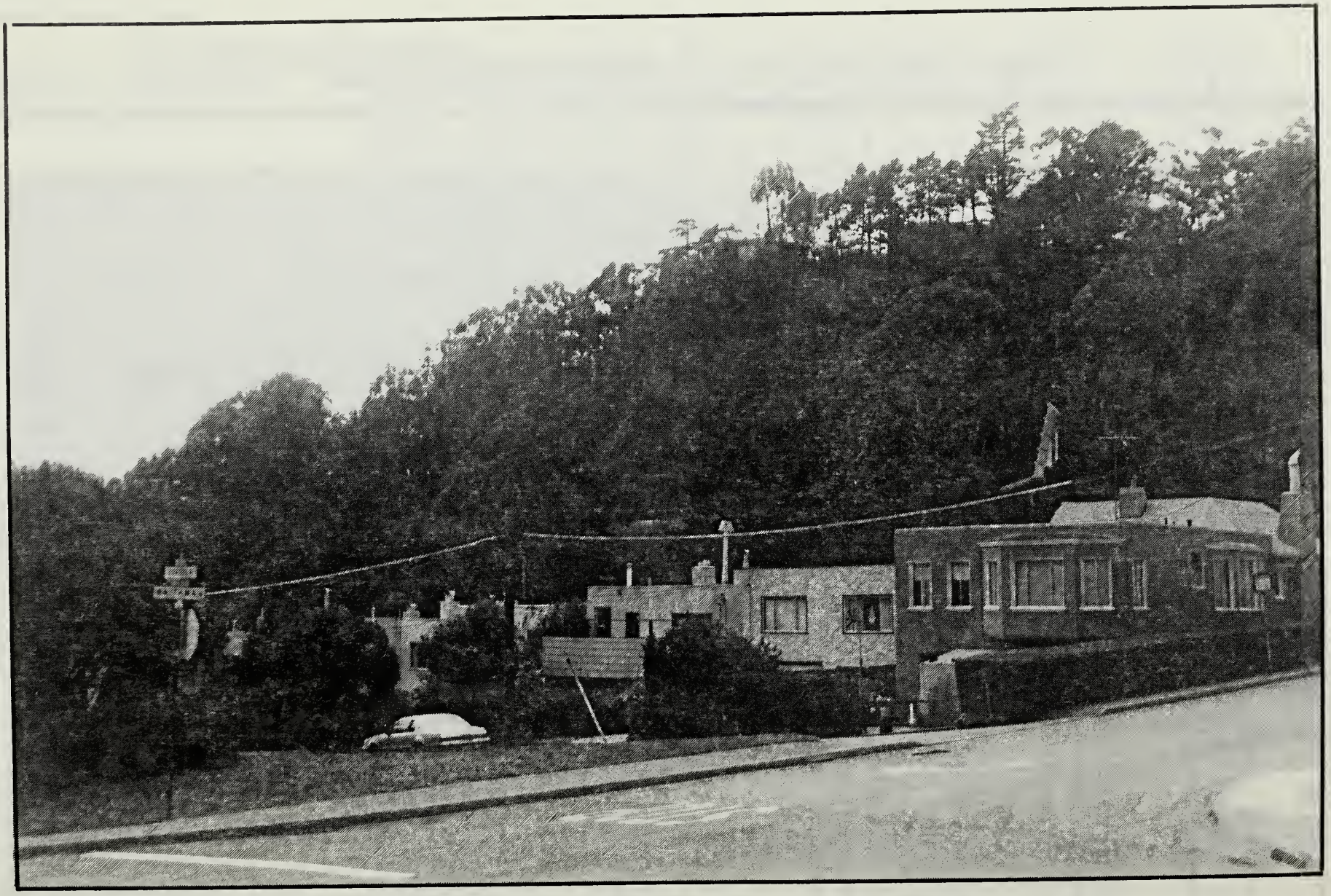

FIGURE 14 - PHOTOGRAPH - VIEW OF PROJECT SITE LOOKING WEST FROM PORTOLA DRIVE-WAITHMAN WAY INTERSECTION

Source: Warner Schmalz

FIGURE 15 - PHOTOGRAPH - VIEW OF PROJECT SITE LOOKING NORTH FROM PORTOLA DRIVE-MIRALOMA DRIVE-MARNE AVENUE INTERSECTION

Source: Warner Schmalz

IV. ENVIRONMENTAL IMPACTS

An environmental evaluation application for the proposed project was filed by the project sponsor with the Department of City Planning on June 23, 1987. A Preliminary Negative Declaration was published by the Department of City Planning on April 29, 1988 and revised on May 23 and July 1, 1988 (see Appendix A). On May 8, 1988, an appeal to the City Planning Commission of the decision to issue a Preliminary Negative Declaration was filed by the Greater West Portal Neighborhood Association. After considering the points raised by the appellants, the City Planning Commission passed Resolution #11393 on July 7, 1988 which found that the project may have a significant impact on the environment and required that an Environmental Impact Report be prepared on the project's potential geological, transportation, noise, visual, open space, and population impacts on the environment. Hence, this EIR addresses these six specific issues. Not all of the impacts presented in this section are physical environmental effects as defined by the California Environmental Quality Act (CEQA). Non-physical effects are included here for informational purposes only.

A. GEOLOGY

IMPACTS OF THE ENVIRONMENT ON THE PROJECT

Since the church was built in 1960, portions of the site have been affected by landslides and rockfalls on several occasions. Slope instability at the site occurs in two forms:

- Accumulation of fine-grained debris by sloughing or ravelling of thin-bedded chert bedrock and its weathered soil overburden.

- Rockfalls of the massive variety of chert bedrock from the steep bluffs above the central area of the site.

The ravelling type of movement can occur either gradually, as part of the normal weathering process, or more rapidly, particularly during periods of high intensity rainfall, such as during the heavy storms of January, 1982. The end product of this ravelling is the fan-shaped accumulation of soil and rock debris which has formed an "apron" at the toe of much of the existing slope. This type of slope movement can result in nuisances and require long-term maintenance rather than endangering life or safety.

Rockfalls, consisting of large masses of up to tens of cubic yards, can occur suddenly and without warning, particularly during periods of heavy rainfall

and/or major seismic events. Such movements can damage or threaten structures and human safety.

Development of the site would need to take both these types of geologic hazards into account. Without implementation of slope stabilization measures, rockfalls and landslides would be expected to occur in the future. In such a situation, the project could increase slope instability through excavation of or construction on the site's existing slopes, adversely affecting the safety of future residents on the site.

These potential impacts are addressed by the slope stabilization measures proposed as part of the project and discussed in the Project Description, pages 18-27. A maintenance program would be implemented as part of the project development. The program would include the allocation of appreciable funds to provide for periodic inspections of elements of the stabilization system and removal of accumulated debris from behind the retaining wall, as required. In addition, all drainage elements would be inspected on a regular basis and cleared of debris as required to maintain their function.

In addition to the slope stabilization measures proposed as part of the project, the Bureau of Building Inspection (BBI) would review final building plans, as well as geotechnical studies prepared for the project. In reviewing building plans, the BBI refers to a variety of information sources to determine existing hazards and assess requirements for mitigation. Sources reviewed include maps of Special Geologic Study Areas and known landslide areas in San Francisco, as well as building inspectors' working knowledge of areas of special geologic concern. The above-referenced geotechnical investigation(s) would be available for use by the BBI during its review of building permits for the site. The BBI could require that additional site-specific soils reports be prepared in conjunction with permit applications, as needed. In addition, the BBI has the right to impose additional measures it may feel necessary to ensure that the project can be constructed safely. The BBI also has the right to revoke the project's use permit at any time in the future if it believes that the lives of people on the site are in danger as a result of an ineffective slope stabilization maintenance program.

Excavation and filling during project construction would be minor, and the project building would be lightly-loaded (i.e., the weight of the building itself would not be so great as to jeopardize slope stability). Water runoff from both the project pad and the hillside above the pad would be collected and transported directly to the City sewer system which would reduce the amount of water runoff presently affecting the site's southern slopes.

B. TRANSPORTATION, CIRCULATION, AND PARKING

As noted previously, a transportation study has been prepared on the project and is available for review. [6] This section summarizes the results of that study.

TRIP GENERATION

Trip generation is affected by the number of employees on site and when they arrive and depart work. Of the project's 26 total employees, 15 (at most) would be on duty at any one time (from about 8:00 AM to 2:00 PM), and shift times for this activity would be staggered differently than other residential or institutional uses. Food service employees, for example, tend to arrive early in the morning to prepare meals and then leave; housekeepers also arrive and leave before peak commute periods with typical work hours of about 6:30 or 7:00 AM to 2:00 or 3:00 PM.

It is difficult to forecast the number of person and/or vehicle trips generated by residential care facilities for several reasons. Auto ownership and use depend partly on the ages of residents and decline markedly with age. Residents' income also influences car ownership, as would the availability of transit service and shopping, eating, and recreational facilities within walking distance.

Surveys Conducted

Several surveys were conducted for the purpose of establishing project trip generation. These are summarized below and are covered in more detail in the background transportation study in the project file.

- A telephone survey of parking and travel-related characteristics of nine facilities for elderly residents, three of which are in San Francisco.
- Trip generation studies of three projects in San Francisco similar to the proposed project, using manual, on-site traffic counting techniques.
- Data on 27 facilities surveyed in other traffic studies, to supplement

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[6] This study is available for review at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, Sixth Floor, San Francisco. Appendix B also contains additional transportation information.

information gathered for the transportation study (see Appendix, Table A-3. page A.18).

Characteristics vary among sites. For example, resident auto ownership ranges from zero at Victorian Manor (1444 McAllister Street in San Francisco) and University Mound Ladies Home (350 University in San Francisco) to 0.10 autos per resident at the Retirement Inn (in Campbell). Most of the facilities surveyed are located in suburban locations, and many are congregate, not residential care, facilities. [7]

The three San Francisco sites surveyed for this EIR were: University Mound Ladies Home, 350 University; Victorian Manor, 1444 McAllister Street; and The Heritage, 3400 Laguna Street. The surveys were conducted from 2:00 to 6:00 PM, and the peak hour of traffic for all three sites occurred between 2:00 and 3:30 PM. The peak hour trip generation rate varied from 0.19/resident at Victorian Manor to 0.34/resident at University Mound. The latter rate is high because of a large number of employees who were picked up by others; each pick-up trip is counted as two vehicle trip ends. Truck activity was recorded with no truck deliveries at one site to two van deliveries at another site during the four-hour afternoon period from 2:00 to 6:00 PM.

Project Trip Generation

Based on survey data, an estimated average daily trip generation rate of 1.39 vehicle trips per resident was developed. [8] The trip generation rate includes

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[7] Congregate care facilities are designed for wholly ambulatory, generally younger seniors able to live fully independent lives. Congregate care residents usually have full kitchens and may prepare some or all meals themselves. A residential care facility is designed for generally older seniors with limited ambulatory ability who are able to live moderately independent lives with basic assistance. Full meal services, for example, are provided.

[8] The following assumptions were made for the trip generation analysis:

- All units were assumed to be occupied.
- The PM peak hour vehicle generation rate was based on the survey data from the studies of Victorian Manor, University Mound, and The Heritage facilities.
- A factor to expand peak hour trips to total daily (24 hour) trips was developed from trip generation surveys of other residential care facilities where it was found that peak hour trips represent about 18% of total daily trips.

resident, employee, visitor, vendor, and other trips and is for one-way trips (the rate should be divided by two to get round-trips).

Project trip generation (200 daily one-way vehicle trips) would be similar to the traffic generated by 22 to 27 single-family homes. In addition, project trip generation would be less than the average daily traffic of the Happy Times Nursery School which occupied the site in 1981 when prior counts were made; tha use generated an average of 333 daily vehicle trips.

PROJECT TRIP DISTRIBUTION

Vehicle trip distribution of project-generated traffic was estimated by observing turning movements at nearby intersections, identifying trip generators and attractors (where employees would live, where stores and restaurants are that residents would use, etc.), and accounting for the effects of Ulloa Street as a one-way street on circulation patterns.

Based on the above factors, an estimated 75% of the inbound traffic would approach the project from Portola Drive, turning right at Waithman Way. One-quarter of the project traffic would approach the project from the west using the 300-block of Ulloa Street. Outbound from the project, 55% of the traffic would exit using Waithman Way, making a right on Portola Drive. The balance would turn left through the 200-block of Ulloa Street to reach Laguna Honda Boulevard.

PROJECT-GENERATED TRAFFIC IMPACTS

Levels of Service with Project Traffic

The traffic impacts of the project are shown in Table 2, page 47. No intersection levels of service would change as a result of project-generated traffic. The only change in the volume/capacity ratio would occur at the Portola-Laguna Honda intersection, where project traffic would increase the volume/capacity ratio by 0.01, an amount which would be imperceptible to motorists. During mid-day and evening off-peak times, when service levels would be better than those presented in Table 2, page 47, the effects of project-generated traffic would be less than during peak hours.

Traffic Impacts on the Residential Environment

Neighbors of the proposed project site have expressed concerns about adding

TABLE 2

Existing, Project, and Cumulative Traffic Impacts
Average Weekday PM Peak Hour a/ Level of Service and (V/C Ratio)

Scenario	Intersection of Portola Drive with: Laguna Honda Boulevard b/	Marne-Miraloma b/	Kensington Way c/
Existing (1987/88)	D (0.83)	B (0.62)	A
Existing + Project	D (0.84)	B (0.62)	A
Cumulative Impacts			
• 1997 Without Project	E/F (1.02)	C (0.76)	B
• 1997 With Project	E/F (1.02)	C (0.76)	B

a/ The 60-minute period between about 4:30 and 6:00 PM (which varies for each intersection), as distinguished from the project peak hour which occurs between about 2:00 and 3:30 PM.

b/ Circular 212 Planning Method used to analyze signalized intersections.

c/ 1985 Capacity Manual (Chapter 10) "reserve capacity" method used to analyze unsignalized intersection. Volume/capacity ratios are not used for unsignalized intersections.

Source: DKS Associates

traffic to the 200-block of Ulloa Street between Waithman Way and Laguna Honda Boulevard, the primary location where parents drop off or pick-up students at St. Brendan's School. Although the average daily traffic of 1,081 vehicles is considered low, short peaks occur when parents transporting children arrive at or leave the school (during these peaks, limited street frontage for parking or waiting vehicles also contributes to traffic delays).

During a 24-hour weekday period, the project would generate an estimated 200 one-way vehicle trips, half of which would be inbound (100) and half outbound (100). During the peak traffic-generating hour of the project (which would occur sometime between 2:00 and 3:30 PM), 36 vehicle trips would be generated: 16 inbound (to the site) and 20 outbound (from the site). Only outbound traffic leaving the site (none inbound) could use the 200-block of Ulloa Street, since it is one-way, and, of all outbound traffic, 45% would be expected to use this block (with the other 55% using Waithman Way). Of the approximately 45 daily trips the project is expected to add to the 200-block of Ulloa Street, eight trips would be

made during the peak school traffic period (which occurs about 2:30 to 3:30 PM).

Determining the maximum number of vehicles acceptable in a residential environment is a subjective, psychological value which is not well understood. The science of traffic engineering is based on measurement of a project's traffic impacts using observable quantities that can be established by scientific methods. Objectively establishing "how much traffic is too much" when traffic volumes are within acceptable intersection capacities is difficult using such methods. The amount of traffic that is "too much" depends on how people value such intangibles as quiet and perceived safety; such perceptions and valuations may vary not only from one person to another but also may change over a period of time.

There is general agreement in the transportation profession that there is a threshold between acceptable and unacceptable levels of traffic to maintain a residential character on a street, but there is no widely used procedure to indicate whether an increment of new traffic on a street would or would not be noticeable to residents. One methodology which professes to provide this type of evaluation is the TIRE Index method (Traffic Infusion on a Residential Environment) invented by Donald Goodrich. According to documentation provided by Mr. Goodrich:

> TIRE is a numerical representation of a resident's perception of the effect of street traffic on activities such as walking, cycling and playing, and on daily tasks such as maneuvering an auto out of a residential driveway. TIRE is expressed by index values that range from zero, representing the least effect of traffic, to five, representing the severest effect ... Any traffic change that would cause an index change of 0.1 or more would be noticeable to street residents.

No documentation is available to explain how the TIRE Index values were derived or how the threshold of noticeability was determined. [9] In response to neighborhood concerns, an evaluation of traffic impacts generated by the project was made using the TIRE methodology. Neither block of Ulloa Street would be affected by noticeable increases in traffic, although, as of the 1988 counts, the 200-block of Ulloa Street is near the threshold volume of traffic where a street loses its residential character, regardless of whether the proposed project is developed or not.

Appendix pages A.14 to A.17 contain a detailed description of the TIRE methodology and its limitations.

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[9] Telephone conversation between Steve Colman and Donald Goodrich, December 19, 1988.

CUMULATIVE DEVELOPMENT

The only new development in the immediate area of which the City Planning Department is aware consists of four single family detached residences with access off of Ulloa Street. Construction was completed on these houses several months ago, but they were not all occupied as of this document's publication. However, traffic from occupancy of all four houses is included in Table 2, cumulative impacts. [10]

The analysis estimated 1997 area traffic conditions and concluded that congestion is likely to occur in the citywide PM peak hour at the Portola Drive-Laguna Honda Boulevard intersection, with or without the project, but that the Portola Drive intersections with Miraloma-Marne and with Kensington Way would be expected to operate at service levels "C" and "B", respectively. [11]

TRAFFIC IMPACTS AT ULLOA-WAITHMAN INTERSECTION

Traffic travelling toward the site would use the 300-block of Ulloa Street or Waithman Way, which form a "T" intersection near the site driveway. Waithman Way and the driveway are not aligned to create a four-way intersection with Ulloa Street (the centerlines are offset by about 30 feet), but people approaching the site from Waithman Way presently enter the driveway by making a short "dog-leg" movement across Ulloa Street.

The project would increase the number of vehicles making this movement; it is estimated that 75% of entering traffic (37.5% of average daily traffic) would cross Ulloa Street from Waithman Way. This movement does not appear to be precluded by law, but it may be confusing to some motorists on Ulloa Street or

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10 Table 2 was prepared using a standard estimated rate of 7.5 vehicle trip-ends per day per unit, with 11% of traffic occurring during the PM peak period, and assuming an in-out split of 70% inbound trips and 30% outbound trips. The trip rate was provided by William Wycko, Department of City Planning, telephone conversation, November 2, 1987. This estimated rate is lower than the rate counted for Edgehill Way homes (7.5 versus 9 vehicle trip ends per house per day), probably because Ulloa Street residents are closer to public transit than Edgehill Way residents are.

11 Peak period Portola Drive volumes were developed by increasing the 1987 values by applying a straight-line growth factor of 22%, although that approach may represent a worst-case situation since growth in San Francisco is likely to occur at a lower rate in the 1987-1997 period than occurred in the 1981-1987 period. The analysis of historic traffic data indicated that traffic increased 13% from 1981 to 1987, for a cumulative annual growth rate of 2.2% per year.

Waithman Way. The project sponsor has requested the City's Traffic Engineering Bureau to reposition "STOP" signs and markings at the Ulloa-Waithman intersection in order to develop a suitable junction which would allow project-bound vehicles from Waithman Way to enter the site safely. It is within the purview of the Traffic Engineering Bureau to develop such a junction; the Bureau has indicated its preliminary approval of the project sponsor's request. (Figure A-1, page A.19 in the Appendix, shows traffic control modifications proposed for the Ulloa Street-Waithman Way intersection.)

PARKING IMPACTS

Under the City Planning Code, one off-street parking space per ten residents would be required for a residential care facility. The project would provide 21 spaces for use by project residents, visitors, and staff, six more than the required 14 spaces, and another 40 spaces would be shared with the church, for a total of 61 off-street spaces. No off-street truck loading space is required by the City Planning Code; the project sponsor intends to provide one such space within the project.

Table 3 shows an analysis of the parking demand (both a high and low projection), as well as the sponsor's proposed number of spaces.

TABLE 3

Parking Analysis
(Number of Parking Spaces, Average Weekday)

	Proposed Project	Low Demand Estimate	High Demand Estimate
Staff	---	9	13
Resident	---	0	14
Visitor	---	5	5
Total Residential Care Facility	21	14	32
Church Parking (Shared)	40	22	30
Total Project with Shared Parking	61	36 a/	62 a/

a/ Estimated peak church parking demand is 22-30 spaces.

Staff Parking

Based on surveys conducted as part of the project's traffic analysis, half of the project's employees would rely on autos to commute (at an average vehicle occupancy of 1.1 persons per car). Using the sponsor's estimate of 15 employees on duty during the peak shift, the project would need seven off-street parking spaces for employees. Two additional spaces are shown in Table 3, page 50 (nine spaces under "low demand") to cover shift overlap when an employee is arriving while another is on duty and about to leave.

The project could result in approximately 19 employees on-site at one time if the ratio of residents to employees were 4.4, the minimum found at other facilities surveyed, compared with the ratio of 5.5 residents per employee estimated by the applicant. (The difference may result from the percentage of full-time to part-time employees.) Using a more conservative ratio of 4.4 residents per employee equates to 19 employees on duty maximum, and, assuming that 65% would drive (rather than 50%) and park at the site, the project would need 13 employee parking spaces (including two for shift overlap).

Resident Parking

Based on surveys of other facilities, the average car ownership rate was 0.05 cars per resident (0.06 cars per resident, excluding facilities with no resident-owned cars). Applied to the project, this rate would result in a need for seven or eight resident parking spaces. The resident parking demand at Buena Vista Manor House of about 0.1 car per resident was used to estimate the maximum demand shown as the "high demand" in Table 3.

Visitor Parking

An estimated five spaces would be needed to cover visitor parking demands at most times. The surveys of other facilities did not provide an estimate on visitor parking demand since most facilities do not designate special spaces for visitors. On a few days of the year, such as Easter Sunday, the project and the church could generate higher visitor parking demands which could result in use of on-street parking spaces on Ulloa Street and Waithman Way. However, such a scenario would be expected to occur fewer than ten days per year.

Other Confirming Data

Based on the 27 congregate and residential care facilities surveyed, all of which

were located in suburban areas, the average parking demand rate (total for all user types) was found to be 0.34 spaces per dwelling unit. Because suburban facilities would be likely to have greater parking demands than a San Francisco facility, this rate would result in a need for 41 project spaces compared with the 32 spaces estimated for the "high demand" in Table 3 (excluding church-related parking).

The peak parking demand of the Church of the Nazarene shown in Table 3 was estimated on the basis of parking use observed on Sunday, November 1, 1987 at 11:15 AM (22 spaces occupied) and on another November, 1987 Sunday at the same time (30 spaces occupied).

TRUCK AND DELIVERY VEHICLE IMPACTS

According to the project sponsor, no more than two regular deliveries would be scheduled per day, most in vans and single-unit trucks. This would be consistent with observations of truck deliveries at institutions similar in size and character to the project. The needs of facilities similar to the proposed project are for laundry, baked and canned goods, beverages, and similar items that are typically delivered in vans or single-unit trucks. The estimated frequency of deliveries also was confirmed by survey which indicated that the average number of truck deliveries was 0.1 per resident per week. Applied to the project, this rate would result in about 14 round-trip truck trips per week (two deliveries per day).

Trucks could be expected to use Waithman Way for access to the site, since Ulloa Street would be less direct, but trucks leaving the site and travelling to the northern part of the City could be expected to use Ulloa Street, Laguna Honda Boulevard, and Seventh Avenue.

The project would provide sufficient on-site turn-around area to accommodate 40-foot wheelbase trucks (larger than expected to be used for deliveries). The traffic circle between the church and project would be designed with a mountable curb which could be driven over, if necessary.

EMERGENCY VEHICLE ACCESS

Based on the responses of six residential care facilities, ambulance transportation is required for residents approximately 0.5 to 4.5 times per month, with an average of 2.1 ambulance calls per month. The number of ambulance calls generated by the project would depend on the average age and general health

of residents. The average age of residents at eight sites surveyed was 80 years old. The project could be expected to generate two to three ambulance calls a month, although not all of those calls would involve the use of a siren.

Fire truck access to the site would be required to meet San Francisco Fire Department requirements. The required 35-foot outside turn radius for a 116-inch wide vehicle (including mirrors) would permit large fire trucks to be turned around within the site.

TRANSIT IMPACTS

The Muni bus routes located nearest to the site are the 43- and 48-lines. The trip generation studies conducted at similar facilities in San Francisco, as noted on page 45, found that most facilities resulted in one to two transit trips during the citywide peak trip generating hour. The 43- and 48-lines would thus be expected to accommodate one to two more transit trips during the citywide peak hour. Muni Metro's K, L, and M-lines carry high loads during peak hours (but have some excess capacity in the reverse peak direction). Because the Metro's maximum load point is located near the Van Ness station, additional trips generated at the West Portal or Forest Hills stations would not be expected to worsen crowding. In addition, transit trips generated by the project may be in the reverse peak direction (westbound in the morning and eastbound in the afternoon).

CONSTRUCTION IMPACTS

Project construction would last approximately 16 to 18 months. The project sponsor estimates that 7,000 cubic yards of material would be removed from the site for building excavation, requiring about 500 truck round-trips during a one month period. This site preparation phase would result in about 25 truck round-trips per day (50 one way trips) via local streets to reach the site. The maximum number of construction workers on the site is expected to be 50 (during the forming, concrete pouring, and finishing stages of the project). Based on typical employee trip generation rates of 4.0 vehicle trip ends per employee, these workers would generate about 200 vehicle trips per day.

Parking demand during the busiest period would probably be for about 50 cars (one for each worker). The project sponsor has stated that, during construction, 30 vehicles can be parked on site. The remaining 20 vehicles would likely park on Ulloa Street near the project driveway. Assuming parking on both sides of the street, this number of cars would take approximately one-half to three-quarters of a block of on-street parking.

C. NOISE

The potential noise impacts associated with the construction and operation of the proposed project fall into four categories:

- The compatibility of the proposed project with the outdoor noise environment.
- Noise generated by project-associated traffic on the streets serving the site.
- Noise generated by mechanical equipment operated on the site and other on-site noise generators.
- Noise generated during project construction.

The following discussion summarizes a noise impact assessment prepared on the project which, as noted previously, is on file and available for public review at the Department of City Planning, 450 McAllister Street.

The Environmental Protection Element of the City of San Francisco Master Plan considers residential uses to be compatible with outdoor noise levels of up to an L_{dn} of 60 dB with no special noise insulation requirements. If the outdoor L_{dn} is between 60 and 65 dB, new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. The noise measurement survey indicates that the existing L_{dn} at the building facade ranges from below an L_{dn} of 60 dB outside the first floor to an L_{dn} of up to 65 dB outside upper floors. In addition to the City's guidelines, the State of California has adopted standards (Title 24, Part 2 of the California Government Code) which affect new multi-unit residential development by requiring the preparation of noise reports for projects located where the outdoor noise level exceeds an L_{dn} of 60 dB. The purpose of the noise report is to show how interior noise levels would be maintained at or below an L_{dn} of 45 dB. The report must be submitted before building permits are issued and would be required for this project. Based on studies conducted for similar facilities, it is probable that all that would be required for the proposed project in order to achieve the appropriate indoor level is that the building be equipped with mechanical ventilation so that the windows can be closed at the occupant's discretion.

Project-generated traffic was analyzed to estimate changes in existing noise levels. The greatest potential for increased noise levels would occur during the project's PM peak hour (between 2:00 and 3:30 PM). The addition of project-

generated traffic would result in less than a one decibel increase in the average noise level at existing homes along all local streets and the site driveway. A one decibel change is undetectable except under laboratory conditions. [12]

The project would result in an estimated 2.1 ambulance calls per month. Ambulance sirens would create noise. Facilities for elderly residents, such as the proposed project, generate less noise from sirens than similarly-sized developments with residents of different ages. [13] The larger number of ambulance calls is balanced by fewer police responses with sirens. Ambulance calls do not require the use of sirens except in emergencies, and ambulance operators generally respond to requests not to use sirens. If used, sirens could be expected to generate noise levels as high as 100 dBA outside homes along the ambulance route. This noise level would be high enough to awaken people indoors.

Noise generated by rooftop mechanical equipment would be regulated by the San Francisco Noise Ordinance (Ordinance No. 274-72, Regulation of Noise). Section 2909 of the Ordinance requires that fixed mechanical equipment noise not exceed a level of 50 dBA at the property line of the nearest adjacent single-family residence between the hours of 10:00 PM and 7:00 AM; between 7:00 AM and 10:00 PM, a level of 55 dBA is allowed. The noise measurement data indicate that the background noise level outside homes on Edgehill Way nearest the site is as low as 48 dBA at night. Mechanical equipment meeting Ordinance limits would be barely audible over the background noise level at this location, and, during the majority of time, project-generated mechanical noise would be masked by traffic and other noises in the area.

Background noise levels are about seven decibels lower outside the homes on Rockwood Court overlooking the site. These homes are also farther from the site than are the homes on Edgehill Way. The noise generated by rooftop mounted equipment is calculated to be barely detectable above the nighttime background noise level at these homes. All other homes in the area would be acoustically shielded from the noise generated by rooftop mounted mechanical equipment either by intervening homes or because they are at an elevation below the roof. The resulting noise generated by the project would be lower than the existing background noise level.

Noise levels in the project's outdoor parking lot would range from less than 50

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12 The Effects of Noise on Man, Karl D. Kryter, 1970.

13 The Lifecare Elderly Residential Community Draft EIR, prepared for the City of Foster City by Mundie & Associates, December, 1986.

dBA when people start and maneuver cars to a maximum of 55 dBA when people rev their car engines. With daytime background noise levels of 50 to 55 dBA in the area, noise generated in the parking lot would be barely detectable, at most, above the background noise outside nearby homes.

Project construction is expected to take about 16 to 18 months. Construction generated noise would be subject to the restrictions of the San Francisco Noise Ordinance.

The highest noise levels would be generated during the site clearance, excavation, slope stabilization, foundation preparation, and building erection phases, expected to be completed during the first 12 months. During these phases, instantaneous maximum noise levels would reach 80 to 85 dBA at a distance of 50 feet. The rear yards of homes fronting Ulloa Street nearest the site would be about 50 feet from the closest construction location on the bench; homes fronting Rockwood Court and Edgehill Way would be farther from bench construction. Maximum instantaneous noise levels would be expected to reach 80 to 85 dBA in the rear yards of the Ulloa Street homes, 70 to 75 dBA outside the homes along Rockwood Court, and 75 to 80 dBA outside the nearest homes on Edgehill Way.

These levels would vary as equipment and construction moved across the site, but fairly constant noise levels would be generated within a five to ten decibel range of 75 to 85 dBA during periods of intense construction when several pieces of equipment are used. These noise levels would interfere with conversation outdoors; noise levels indoors with the windows closed would be about 20 dBA lower but would interfere with conversation and relaxation.

Finishing work would take place inside the project and would be quieter than site preparation and building erection work. Noise levels during this phase would not be expected to interfere with indoor or outdoor conversations at adjacent residences.

Removing excess dirt and rocks during foundation excavation is estimated to require a 30-day period and involve approximately 50 trips per day (25 in and 25 out) by large diesel tractor trailers -- an average of four trucks per hour during an eight-hour shirt. This truck traffic would generate an estimated average noise level of 50 to 55 dBA and a maximum noise level of about 80 dBA outside homes along the streets used by the trucks. The average noise levels would be lower than existing average noise levels along these streets; maximum levels would be similar to those generated by buses and trucks currently on the streets.

D. URBAN DESIGN

Project photographic montages are presented in Figures 16, 17, and 18, pages 58 through 60.

The proposed building would not break the profile of the hillside backdrop. Building heights would not exceed the 40-foot high church steeple, except for some rooftop design elements such as chimneys or roof peaks which could be up to ten feet higher than the steeple. The rest of the project building would be the same height as or lower than the church's steeple. The church building was not rated by the City's 1976 architectural survey.

According to the project sponsor, the proposed building is designed to appear to be a series of buildings above a basement by the division of the south elevation into modules. Thus, above the garage level, the south facade would consist of different planes with the first floor footprint punctuated by two outdoor courtyards and a third garden area, all open to the south, and upper floors set back at various intervals and distances along the length of the building.

Slope stabilization measures would occur on hillside elevations above the roofline of the proposed building and would consist of both engineering and landscaping measures. The visibility of both types of measures would vary with distance from the site, and the visibility of landscaping measures would change over time, depending on plant installation and maintenance.

Initial removal of vegetation in order to clear the hillside of loose rocks and and soil would expose more of the quarry face than presently is visible and would temporarily alter existing views of the site. Thirty-five trees with diameters of six inches or larger would be removed from the western portion of the site adjacent to the City-owned open space, together with smaller trees and bushes. An estimated 12,000 cubic yards of loose rock and soil also would be removed during slope stabilization (see Figures 5-11, pages 19-27). The character of the resulting view would continue to be of a landform disturbed by people, as at present.

New landscaping would be planted around the building and on the slope behind the project. Figure 16, page 58, shows an artist's conception of landscaping on the slope after approximately five years of growth.

E. OPEN SPACE

The project would include the construction of a public access trail from the

FIGURE 16 - PHOTOMONTAGE - VIEW OF PROJECT LOOKING NORTH FROM PORTOLA DRIVE-REX AVENUE INTERSECTION

Source: Chun Ishimaru and Associates

FIGURE 17 - PHOTOMONTAGE - VIEW OF PROJECT LOOKING WEST FROM PORTOLA DRIVE-WAITHMAN WAY INTERSECTION

Source: Chun Ishimaru and Associates

FIGURE 18 - PHOTOMONTAGE - VIEW OF PROJECT LOOKING NORTH FROM PORTOLA DRIVE-MIRALOMA DRIVE-MARNE AVENUE INTERSECTION

Source: Chun Ishimaru and Associates

site's Ulloa Street frontage along the southern site boundary to the adjacent City open space. Enhanced public access could increase public use of the open space, although there is no evidence to conclude that an increase in public use would have a potentially significant effect on the area. Given the advanced age of project residents and the fact that no improvements are proposed by the Recreation and Park Department to the Edgehill open space, impacts on the open space by project residents would be minimal.

The project site is contained within a 40-X height and bulk district. Buildings which are 40 feet in height or less are not subject to the requirements of Section 295 of the City Planning Code (the City's Park Shadow Ban Ordinance). The project building would comply with the site's height and bulk restrictions.

F. POPULATION

The maximum number of on-site construction workers would be 50 at any one time. The existing church presently employs one person; the project would not displace this employee. Upon completion, the project would introduce a maximum of 140 residents and 26 employees to the site. Given an approximately 3.3 acre site, the project would have a residential density of about 42 persons per acre, a density which lies between levels recommended in the Residence Element of the Master Plan for RH-1/"Low Density" districts (24-31 persons per acre) and RH-2/ "Moderately-Low Density" districts (64-91 persons per acre). As noted in Chapter II, Project Description, page 28, the project would require Conditional Use authorization by the City Planning Commission for its proposed density. Combined with the lack of vacant privately-owned lots similar in size to the project site in the surrounding area, there is no evidence that the project could induce substantial growth or concentration of population.

V. MITIGATION MEASURES

In the course of project planning and design, measures have been identified which would reduce or eliminate potential environmental impacts of the proposed project. These measures have been included as part of the project or would be adopted by the project sponsor or project architects or contractors. No other potentially significant adverse impacts for which additional mitigation would be required would result from the project; thus, no further mitigation measures would be required.

As discussed in Chapter IV, Environmental Impacts, pages 42-61, the final building plans, including slope stabilization measures proposed as part of the project and described in Chapter II, Project Description, pages 18-27, would be reviewed by the Bureau of Building Inspection. The Bureau is required to review final building plans, including geotechnical studies, as part of the permit application process. For this reason, this requirement does not constitute a project mitigation measure.

For informational purposes, the following provides a summary of measures which would reduce or eliminate potential project geotechnical impacts.

The project would include the following slope stabilization measures:

- Remove loose rock masses and install rock bolts.
- Scale slope of loose material.
- Flatten or shape crest of slope.
- Drape slope with wire mesh secured to slope.
- Construct catchment wall.
- Implement long-term slope maintenance program.

In addition to the slope stabilization measures proposed as part of the project, the Bureau of Building Inspection (BBI) would review final building plans, as well as geotechnical studies prepared for the project. In reviewing building plans, the BBI refers to a variety of information sources to determine existing hazards and assess requirements for mitigation. Sources reviewed include maps of Special Geologic Study Areas and known landslide areas in San Francisco, as well as building inspectors' working knowledge of areas of special geologic concern. The above-referenced geotechnical investigation(s) would be available for use by the BBI during its review of building permits for the site. The BBI could require that additional site-specific soils reports be prepared in conjunction with permit applications, as needed. In addition, the BBI has the right to impose additional measures it may feel necessary to ensure that the project can be constructed safely. The BBI also has the right to revoke the project's use

permit at any time in the future if it believes that the lives of people on the site are in danger as a result of an ineffective slope stabilization maintenance program.

Excavation and filling during project construction would be minor, and the project building would be lightly-loaded (i.e., the weight of the building itself would not be so great as to jeopardize slope stability). Water runoff from both the project pad and the hillside above the pad would be collected and transported directly to the City sewer system which would reduce the amount of water runoff presently affecting the site's southern slopes.

VI. SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

This chapter identifies significant impacts which could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the project or other mitigation measures, as described in Chapter V, Mitigation Measures, pages 62-63. This chapter is subject to final determination by the City Planning Commission as part of its certification process of the EIR. Chapter VI of the Final EIR will be revised, if necessary, to reflect the findings of the Commission.

No significant project-specific or cumulative impacts have been identified. Measures included as part of the project that would eliminate or reduce impacts to insignificant levels are described in Chapter II, Project Description, pages 18-27.

VII. ALTERNATIVES TO THE PROPOSED PROJECT

This chapter identifies alternatives to the proposed project, discusses environmental impacts associated with each alternative, and gives the sponsor's reasons for rejection in favor of the project. Regardless of the sponsor's reasons for rejection, the City Planning Commission could approve an alternative instead of the proposed project, if the Commission believed the alternative would be more appropriate for the site. Table 4, page 77 summarizes the primary assumptions of the alternatives.

A. ALTERNATIVE A -- NO PROJECT

This alternative would entail no change to the project site. The existing church would remain, but the proposed project would not be built. Existing vegetation would remain, and no alterations would be made to exposed slopes of the site's hillsides. The site would remain within the RH-1(D) zoning district.

If the No Project Alternative were implemented, none of the impacts associated with the project would occur. The environmental characteristics of this alternative generally would be as described in the Environmental Setting section of this report (see Chapter III, Setting, pages 30 through 41). The site's slopes would continue to ravel with the weathering process, and landslides and rockfalls could be expected in the future during periods of heavy rainfall or under seismic loading during an earthquake. No new traffic would be generated from the site and added to local streets, and there would be no change in the existing noise environment due to the use of the site. Under this alternative the site would remain vacant, available for development in the future.

This alternative was rejected by the sponsor because it would not provide a return on his investment and would not use the development potential of the site allowable under the City Planning Code.

B. ALTERNATIVE B -- 150-UNIT RESIDENTIAL CARE FACILITY

Alternative B assumes development of a 110,000 square-foot, 150-unit (180-bedroom) residential care facility, a larger project than presently proposed. It would result in an additional 16,340 square feet of building area (17% larger) and 25% more units (50% more bedrooms) than the proposed project. This alternative could accommodate a residential population of about 180 senior citizens, compared with 140 residents with the project. Total on-site population, including employees, would be approximately 200 people.

Alternative B would result in a ground floor footprint of approximately 29,070 square feet and a building of four and five stories over ground level parking (compared to the three to four stories with the project). The northern facade of the building would be located ten to fifteen feet from the toe of the slope where a catchment wall would be built. This alternative assumes implementation of the same slope stabilization measures as proposed by the project. Seventy off-street parking spaces would be provided under this alternative.

Private facilities, common facilities, and services provided for residents would be similar to those proposed under the project. The existing church would remain.

From a geotechnical standpoint, the stabilization requirements for Alternative B (and Alternative C) would be identical to those described for the project. Slope stabilization measures included in the project and all alternatives are compared in Table 5, page 78, which also presents the estimated costs to implement the measures.

Alternative B would generate an average of about 250 one-way vehicle trips on an average weekday (a 25% increase over estimated project-generated traffic). Approximately 45 of these vehicle trips could be made during the project's peak traffic period (between 2:00 and 3:30 PM). Changes in intersection levels of service would not differ quantitatively from those expected from the project as proposed. To respond to concerns about traffic increases on residential streets, the TIRE methodology was used for this alternative. No "noticeable" impact (as defined by the TIRE methodology) on the residential street environment would result under Alternative B.

Construction could take slightly longer than the project, but development-generated noise would not differ from the levels expected with the project. Traffic-generated noise levels would be of the same approximate magnitude as would the project. The City's Noise Ordinance provisions for mechanical equipment noise would apply to noise sources generated under this alternative as with those of the project.

This alternative would result in a building which would be one story taller than the proposed project. As a result, the structure would rise higher than the steeple of the existing church and would be more visible against the site's hillside backdrop than the project. Building design and layout would be similar to the project. Slope stabilization measures (and their visibility) would be identical to those proposed under the project except that measures implemented on lower hillside elevations could be blocked by the higher building proposed under this alternative. Impacts on the adjacent open space would be similar to those

of the project given this alternative's similar residential care use. This alternative would have a population density of about 59 persons per acre.

The sponsor has rejected Alternative B due to public opposition expressed when the four-story building was proposed in February, 1987. Revised applications for a smaller project, to meet the sponsor's objectives and respond to public comments, were submitted to the City Planning Department in April, 1988 and became the subject of this EIR in October, 1988.

C. ALTERNATIVE C -- 107-UNIT RESIDENTIAL CARE FACILITY

Alternative C assumes development of a smaller, 83,780 square-foot, 107-bedroom residential care facility than presently proposed. It would result in 9,880 square feet less building area (about 11% smaller) than the project and 11% fewer bedrooms than proposed by the project. Area devoted to indoor common and residential use would not exceed 70,000 square feet. This alternative could accommodate a residential population of about 130 senior citizens, compared to 140 residents with the project.

Alternative C would result in a ground floor footprint of approximately 25,000 square feet and a building of three stories over subsurface parking. The northern facade of the building would be located ten to fifteen feet from the catchment wall at the toe of the slope, and this alternative would include implementation of the same slope stabilization measures proposed by the project. Sixty off-street parking spaces would be provided. Private facilities, common facilities, and services provided for residents would be similar to those proposed for the project. The existing church would remain.

This alternative would generate an average of about 181 one-way vehicle trips on an average weekday (90% of the estimated traffic generated by the project). Approximately 33 of these trips could be made during the peak project traffic period (between 2:00 and 3:30 PM). Traffic generated by Alternative C would result in no "noticeable" impact on the residential street environment, as defined by the TIRE methodology.

Construction would take slightly less time than the project, but development-generated noise would not differ from the levels expected with the project. Traffic-generated noise levels would be of the same approximate magnitude as would the project. The City's Noise Ordinance provisions for mechanical equipment noise would apply to noise sources under this alternative as to those of the project.

The three-story Alternative C building would not be as high as the proposed project building; the steeple of the existing church would be higher than the roof of this alternative residential care facility. The lower building height would block less of the site's hillside backdrop than the project or Alternative B. Building design and layout would be similar to the project. Slope stabilization measures (and their visibility) would be identical to those of the project. Impacts on the adjacent City open space would be similar to those of the project. This alternative would have a population density of about 39 persons per acre.

The sponsor has rejected Alternative C due to the projected difference between this alternative's development costs, including slope stabilization measures, and income expected from a residential care facility of this size. According to the applicant, the ratio of management staff to this alternative's residential population would be too high to make such a project feasible economically and to keep rents at affordable rates.

D. ALTERNATIVE D -- SINGLE-FAMILY RESIDENTIAL DEVELOPMENT

DESCRIPTION

Alternative D considers developing the site under two single-family dwelling development concepts:

- D-1 -- single-family detached units in accordance with the site's RH-1(D) zoning.

- D-2 -- single-family attached units in accordance with the provisions for a Planned Unit Development (PUD) as described in Section 304 of the City Planning Code.

These development concepts could be applied to the site with different density or access options. Two possible approaches are defined below, although other options would be available.

- Alternative D-1 assumes an RH-1(D) development of 13 detached dwelling units on the "bench" with access from Ulloa Street.

- Alternative D-2 assumes a PUD development of 31 attached and detached dwelling units: 28 attached units on the "bench" with access from Ulloa

Street and three detached units near the site's northern property line with access from Edgehill Way.

Alternatives D-1 and D-2 are illustrated conceptually in Figures 19 and 20, pages 70 and 71.

Alternative D-1

Alternative D-1 would conform to the requirements of the site's RH-1(D) zoning. [14] Alternative D-1 assumes that "bench" area lots would measure 33 feet by about 76 to 110 feet long, for an average lot size of about 2,840 square feet. Each lot is assumed to be developed with one, approximately 3,500 square-foot, four-story unit with up to five bedrooms. No uphill lots are assumed on Edgehill Way.

Access would be provided from Ulloa Street along the alignment of the existing driveway which would be extended west, parallel to the toe of the hillside and would end in a cul-de-sac at the western site boundary. Housing units would be set back about 42 feet from a hillside retaining wall, about 23 feet from the southern property line, and ten feet from the western property line. Two garage parking spaces per unit are assumed, and an additional 17 spaces would be shared with (and located near) the church.

Alternative D-2

Alternative D-2 would apply the provisions of a PUD to obtain a density of 31

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[14] The maximum number of detached single family residential dwellings which could be developed under the site's RH-1(D) zoning has been calculated by the applicant's architect, as follows:

• Area of Site	143,600	Square Feet (SF)
• Subtract Area of Church	- 7,000	SF
• Subtract Area of Private Access Road and Cul-De-Sac (Section 207.1)	-22,046	SF
• Area of Site for Density Calculation	103,554	SF
• Density Ratio (Section 121 (d))	4,000	SF/Lot
• Maximum Number of Units	25.8 = 25	

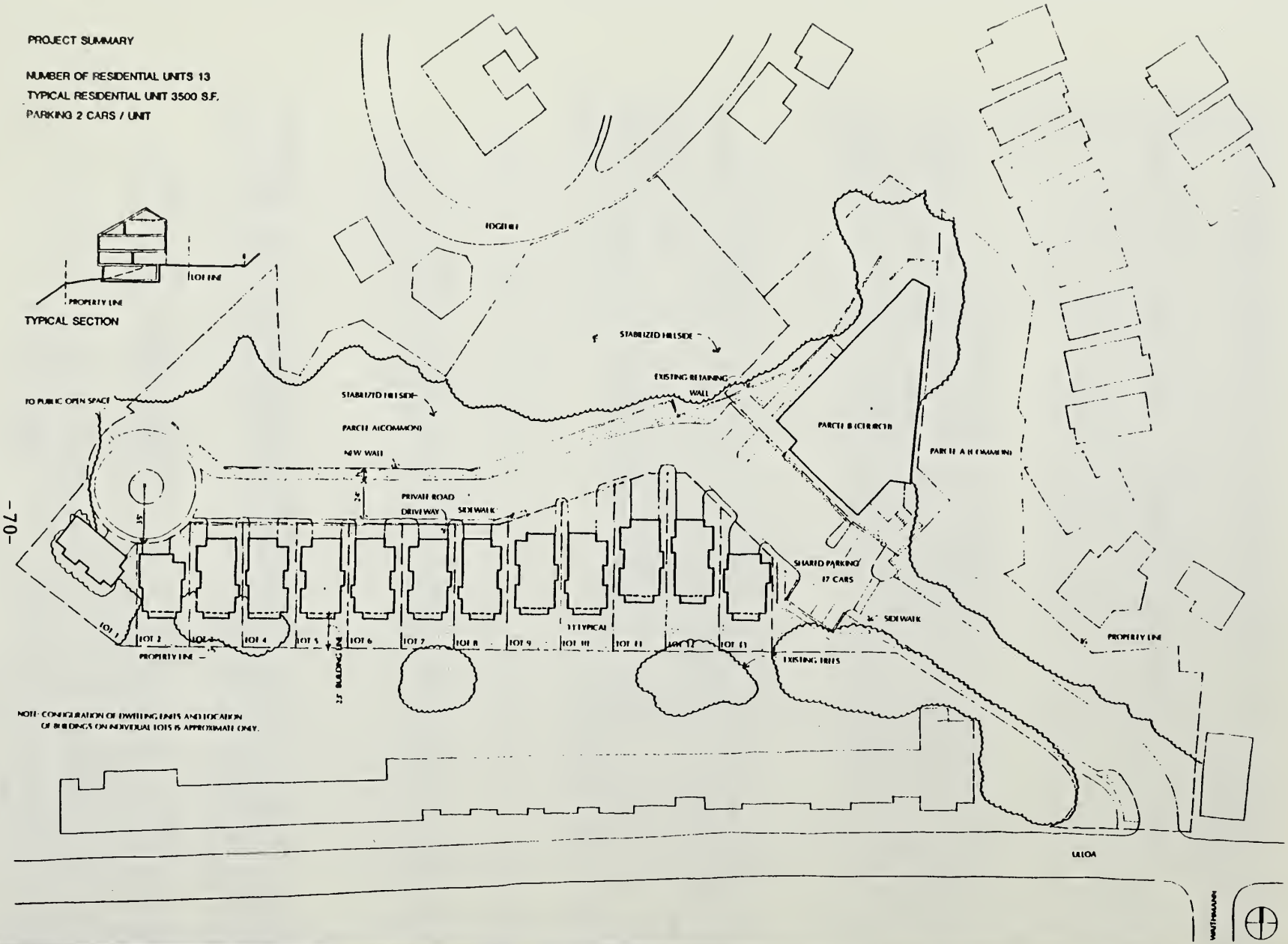

FIGURE 19 - SITE PLAN -- ALTERNATIVE D - 1

Warner H. Schmalz A.I.A., October 28, 1988

N

0 80 Feet

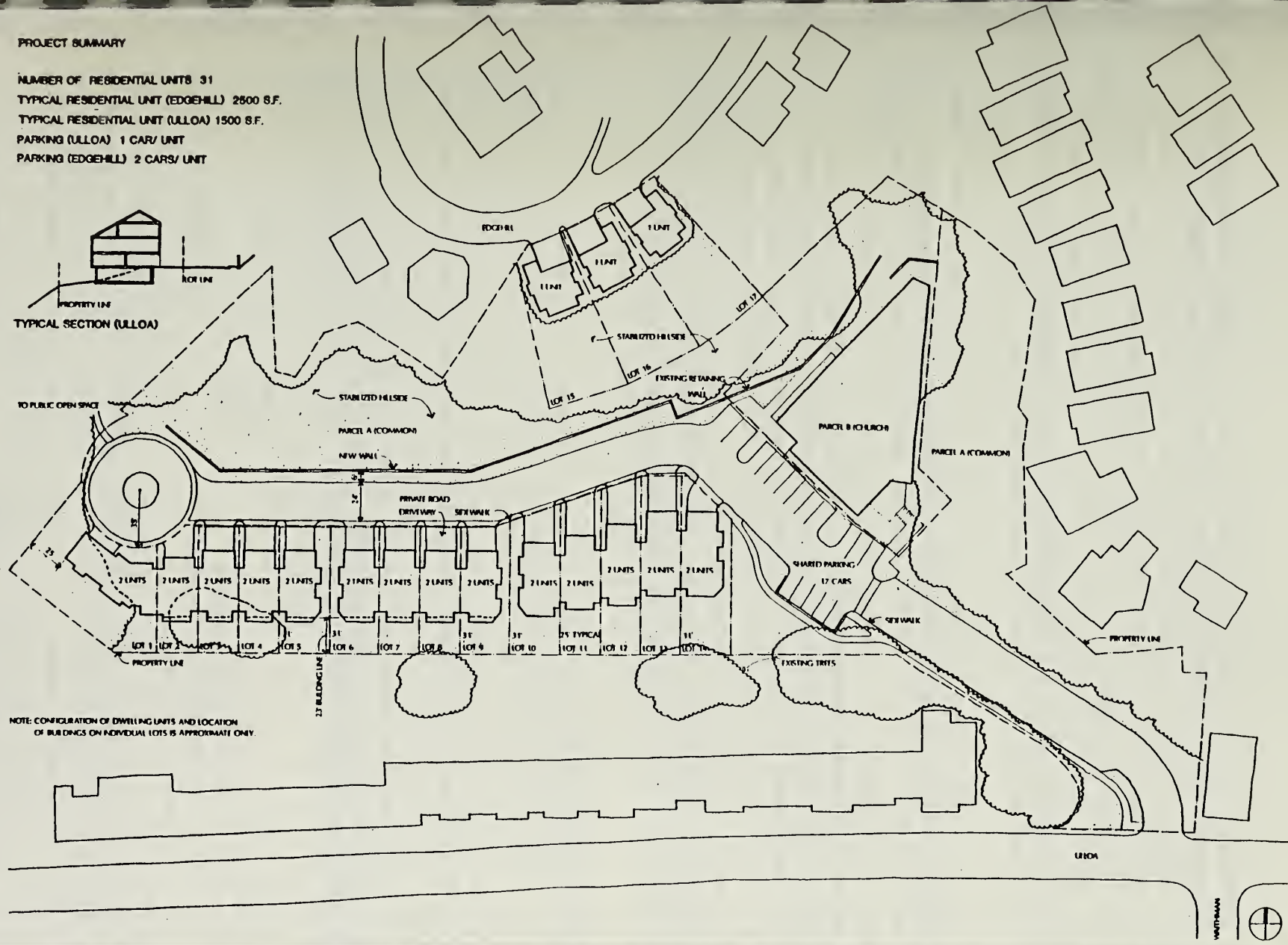

FIGURE 20- SITE PLAN -- ALTERNAITIVE D - 2

Warner H. Schmalz A.I.A., October 28, 1988

units. [15] Alternative D-2 assumes that "bench" area lots would measure from 25 to 31 feet wide by 76 to 110 feet long, for an average lot size of about 2,500 square feet. Each lot would be developed with two, approximately 1,500 square-foot attached dwellings. "Bench" area buildings are assumed to be four stories in height and have three bedrooms per dwelling. The three lots which would front Edgehill Way would measure 23 to 35 feet by 100 feet, for an average lot size of about 4,160 square feet. The detached dwellings would contain 2,500 square feet, consist of four stories, and have four to five bedrooms.

Access to the 28 "bench" area dwelling units would be provided from Ulloa Street along the alignment of the existing driveway. This internal street would be extended west, parallel to the toe of the hillside, and would end in a cul-de-sac at the western site boundary; it would form a 24-foot wide paved buffer located six feet south of a hillside retaining wall. Dwelling units would be set back by approximately 48 feet from the hillside, about 23 feet from the site's southern property line, and about 25 feet from its western property line. Off-street parking for one car per unit would be provided. Three separate curb-cuts off Edgehill Way would serve driveways to the detached units under Alternative D-2; garage parking for two cars per detached unit would be provided. An additional 17 parking spaces would be shared with (and located near) the church.

ENVIRONMENTAL IMPACTS

Geology

Slope stabilization measures under both Alternatives D-1 and D-2 would consist of the following:

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[15] The maximum number of residential units which could be developed on the site under a PUD have been calculated according to the City Planning Code by the applicant, as follows:

• Area of Site	143,600	Square Feet (SF)
• Subtract Area of Church	- 7,000	SF
• Subtract Area of Private Access Road and Cul-De-Sac (Section 207.1)	-22,046	SF
• Area of Site For Density Calculation	103,554	SF
• Density Ratio within an RH-1 district with Conditional Use authorization (Section 209.1(f))	3,000	SF/Unit
• Maximum Number of Units	34.5	34
• Maximum Number of Units for a PUD with a Conditional Use (one less unit than permitted within an RH-1 district)	34 - 1 =	33

- Scaling loose rocks from the prominent bedrock outcrop and draping and securing wire mesh to the slope (rock bolts would not be necessary).

- Flattening the overhanging or steep slopes in the western portion of the site.

- Building a six- to eight-foot high (depending on final design recommendations) reinforced concrete catchment wall at the toe of the major slope.

Slope stabilization under Alternative D-2 would require the following additional measures:

- Building an underpinning wall along Edgehill Way consisting of drilled, cast-in-place concrete piers connected by a reinforced concrete grade beam and tied back across the road. (Figure 21, page 74, illustrates this measure schematically.)

- Scaling loose rocks off the prominent bedrock outcrop and installing rock bolts and wire mesh below the underpinning wall (mesh only would be draped over the rock cliff west of the wall).

Alternatives D-1 and D-2 generally would require less slope stabilization than needed for the project or the two residential care facility alternatives (Alternative B or Alternative C) because of the 42- to 48-foot buffer zone between the housing units and the toe of the existing slope. Alternative D-2 would require underpinning Edgehill Way, as described above, together with the other slope stabilization techniques described above, because of the three units assumed to be built with access from this street. Such underpinning would not be necessary for Alternative D-1, which would not involve construction near Edgehill Way. Underpinning of Edgehill Way required for Alternative D-2 would need approval of the City's Director of Public Works.

Traffic and Circulation

The environmental setting of Alternatives D-1 and D-2 is the same for the proposed project, except that Alternative D-2 would affect traffic on Edgehill Way. According to a November, 1988 traffic count on Edgehill Way near Garcia Street, Edgehill Way carries about 300 to 325 average daily traffic (ADT). It is a narrow, one-way, looped residential street which carries local (no through) traffic and serves approximately 36 homes. Parking on Edgehill Way is limited to one side in some locations and is prohibited entirely in other locations; on-

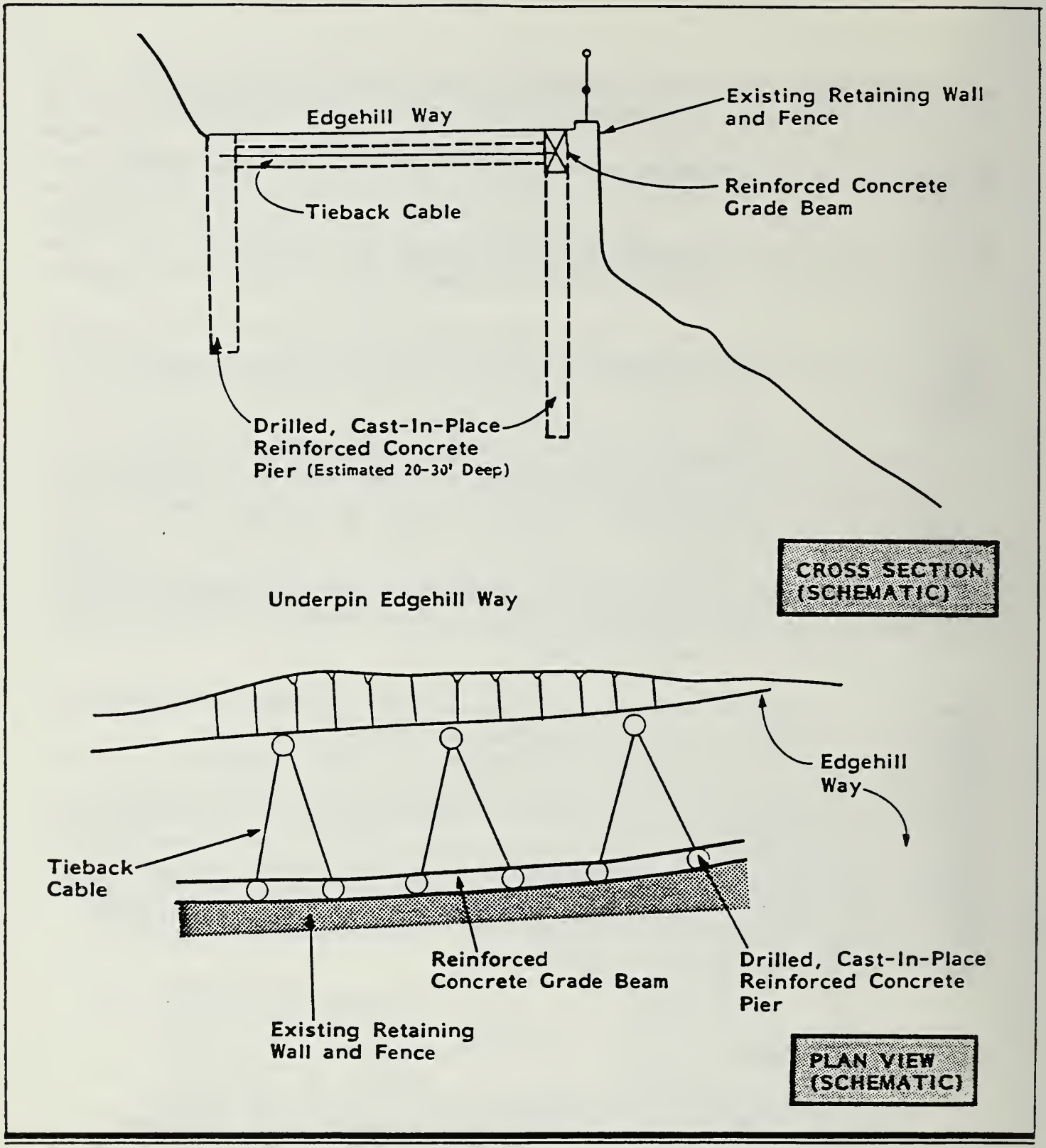

FIGURE 21 - SCHEMATIC SKETCH -- UNDERPIN EDGEHILL WAY

Source: Dames and Moore

Not to Scale

street parking was observed to be 30% to 35% occupied during the mid-day. The street width varies from about 14 feet, adjacent to the site, to as little as seven or eight feet in some areas. This width would prohibit larger trucks.

Assuming the three detached dwellings in Alternative D-2 would have the same trip generation as the adjacent existing houses, about 27 to 30 additional daily vehicle trips would be added to Edgehill Way. This would increase the TIRE Index number of the area adjacent to the project site on Edgehill by slightly more than 0.1, which is above the threshold of noticeability. Alternative D-1 would not place additional traffic on Edgehill Way but would result in about 130 daily vehicle trips from development on the bench (65% of project traffic). Alternative D-2 would result in about 210 daily trips from development on the bench (105% of project traffic).

Noise

Construction of either Alternative D-1 or D-2 would take a similar (or slightly shorter) time than the project. Alternatives D-1 or D-2 would not have rooftop-mounted mechanical equipment, as proposed by the project, and, thus, there would be no mechanical equipment noise generated during the day or at night. With this exception, operational noise of these alternatives would not differ from the levels expected with the project. Development on Edgehill Way (Alternative D-2 only) primarily would occur out of the line-of-sight of existing Edgehill Way homes. Traffic-generated noise levels would be of the same approximate magnitude as those from the project.

Urban Design

While the bench itself does not relate visually to existing patterns of development which have occurred around the former quarry site, the visual character of the attached dwelling units under Alternative D-2 could be viewed as similar to the attached homes built along Ulloa Street; these units would appear to be a continuous linear building mass. Construction of the detached units with side yards under Alternative D-1 would result in smaller building volumes, breaking up the apparent building mass compared with Alternative D-2 development.

The three detached dwelling units which would front Edgehill Way under Alternative D-2 would be visually prominent. The existing profile of the site's hillside would be broken. Underpinning of Edgehill Way under Alternative D-2 would not be visible behind the existing Edgehill Way retaining wall, but

foundation structures for the three dwelling units at that location would be visible within the surrounding area.

Other Impacts

These alternatives would result in somewhat increased use of the adjacent City open space given the potential for a younger population residing within the site. Population density would be less than that of the proposed project under Alternative D-1 and would be somewhat less than the project under Alternative D-2.

SPONSOR'S REASONS FOR REJECTION

The sponsor has rejected Alternatives D-1 and D-2 because neither would fulfill his objective to build and operate a senior residential care facility in an area of the City where the applicant believes that there is a need for such a facility.

The sponsor has rejected both Alternatives D-1 and D-2 because he believes the dwelling units could not be sold at a sufficient market value to create a return on the investment of constructing the project and stabilizing the hillside.

TABLE 4
Comparison of Project and Alternatives

	Proposed Project	Alternatives A	B	C	D-1	D-2
Total New Building Area (square feet)	93,600	-	110,000	83,000	45,500 a/	49,500 b/
Ground Floor Footprint (square feet)	27,930	-	29,070	25,000	16,250 c/	20,300 d/
Number of Units	114-120	-	150	107	13	31
Number of Bedrooms	120	-	180	107	65 e/	99 f/
Parking (spaces):						
• Garage	44	-	53	43	26	34
• Outdoor	17	-	17	17	17	17
Total Spaces	61	-	70	60	43	51

a/ Assumes 13 single-family dwellings of 3,500 square feet each.

b/ Assumes 28 dwelling units of 1,500 square feet each (for a subtotal of 42,000 square feet) and three single-family dwelling units of 2,500 square feet each (for a subtotal of 7,500 square feet).

c/ Assumes 1,250 square-foot footprints.

d/ Assumes 1,150 square feet per lot for bench units (for a subtotal of 16,100 square feet) and 1,400 square feet per lot (including parking deck) for uphill units (for a subtotal of 4,200 square feet).

e/ Assumes 13 units with five bedrooms each (for a total of 65 bedrooms).

f/ Assumes 28 units with three bedrooms each (for a subtotal of 84 bedrooms) and three units with five bedrooms each (for a subtotal of 15 bedrooms).

Source: Nichols-Berman

TABLE 5

Summary of Slope Stabilization Measures and Comparative Costs

Stabilization Element		Proposed Project	Alternative A	B	C	D-1	D-2
A	Remove Loose Boulders and Install Rock Bolts	X	-	X	X	X a/	X
B	Scale Slope of Loose Material	X	-	X	X	X	X
C	Flatten/Shape Top of Slope	X	-	X	X	X	X
D	Drape with Wire Mesh and Secure to Slopes	X	-	X	X	X	X
E	Construct Catchment Wall	X	-	X	X	X	X
F	Underpin Edgehill Way	-	-	-	-	-	X
Estimated Costs of Stabilization Measures		$560,900	-	$560,900	$560,900	$375,600	$610,800

a/ Remove loose boulders and install wire mesh (secured to slope); no rock bolts would be installed with Alternative D-1 (as proposed for the project and Alternatives B, C, and D-2).

Source: Dames & Moore

VIII. DRAFT EIR DISTRIBUTION LIST

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Northwest Information Center
California Archaeological Inventory
Department of Anthropology
Sonoma State University
Rohnert Park CA 94928
Attn: Christian Gerike

State Office of Intergovernmental Management
State Clearinghouse
1400 - Tenth Street
Sacramento CA 95814
Attn: Loreen McMahon

CITY AND COUNTY OF SAN FRANCISCO

Bureau of Building Inspection
450 McAllister Street
San Francisco CA 94102
Attn: Larry Litchfield
Superintendent

Landmarks Preservation Advisory Board
450 McAllister Street
San Francisco CA 94102
Attn: Vincent Marsh

Mayor's Office of Business and Economic Development
100 Larkin Street
San Francisco CA 94102
Attn: James Ho

Mayor's Office of Community Development
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San Francisco CA 94102
Attn: Larry Del Carlo

Mayor's Office of Housing
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Attn: Brad Paul

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Bureau of Energy Conservation
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San Francisco CA 94102
Attn: John Deakin, Director

Recreation & Park Development
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Golden Gate Park
Fell and Stanyan Streets
San Francisco CA 94117
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Edgehill Way Association
275 Edgehill Way
San Francisco CA 94127

Forest Hills Association
John Gathen, President
1975 -- 25th Avenue
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Greater West Portal Neighborhood
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Ms. Lillian Fry
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Orlando and Josephine Espenilla
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Ms. Donnabelle Delfava
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Mr. William Schiffmann
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San Francisco CA 94127

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Arthur and Erna Stucky
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Harvard and Gertrude Harper
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San Francisco CA 94127

Joseph and Catherine Gelvin
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Mr. Franklin Lau
346 Ulloa Street
San Francisco CA 94127

Mr. Clarence Esposto
352 Ulloa Street
San Francisco CA 94127

R. C. Fox
358 Ulloa Street
San Francisco CA 94127

Arthur and Ruth Mullins
364 Ulloa Street
San Francisco CA 94127

Mr. Ron Leon
400 Ulloa Street
San Francisco CA 94127

Helvie Miller
408 Ulloa Street
San Francisco CA 94127

Albine and George Bracamonte
414 Ulloa Street
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Sally Tighe and Jackie Maker
420 Ulloa Street
San Francisco CA 94127

Ms. Celia Harris
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Norman and Marina Winkler
432 Ulloa Street
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Robert Kossler and C. L. Theorin
444 Ulloa Street
San Francisco CA 94127

John and Norma Dea
452 Ulloa Street
San Francisco CA 94127

Dana Huff
462 Ulloa Street
San Francisco CA 94127

George and Celia Wong
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Mill Valley CA 94941

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301 Edgehill Way
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305 Edgehill Way
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San Francisco CA 94127

Carol Gruber
315 Ulloa Street
San Francisco CA 94127

Garret & Vivian Estie
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S. R. Hammond
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San Francisco CA 94102
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KPOO-FM
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San Francisco CA 94101

San Francisco Bay Guardian
2700 - Nineteenth Street
San Francisco CA 94110
Attn: Patrick Douglas
City Editor

San Francisco Business Times
325 Fifth Street
San Francisco CA 94107
Attn: Tim Turner

San Francisco Chronicle
925 Mission Street
San Francisco CA 94103
Attn: Martin Halstuk
Dawn Garcia

San Francisco Examiner
P. O. Box 7260
San Francisco CA 94120
Attn: Gerald Adams

San Francisco Independent
608 Taraval Street
San Francisco CA 94116
Attn: Susan Herbert

The Sun Reporter
1366 Turk Street
San Francisco CA 94115

Tenderloin Times
146 Leavenworth Street
San Francisco CA 94102
Attn: Rob Waters

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San Francisco CA 94102
Attn: Faith Van Liere

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215 Fremont Street
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San Francisco CA 94132

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Institute of Government Studies
109 Moses Hall
University of California
Berkeley CA 94720

IX. APPENDICES

APPENDIX A

Initial Study

File No.: 87.399EC
Address: 300 Ulloa Street

SAN FRANCISCO

CITY PLANNING COMMISSION

MOTION NO. 11393

ADOPTING FINDINGS RELATED TO THE APPEAL OF THE NEGATIVE DECLARATION, FILE NUMBER 87.399EC FOR THE PROPOSED DEVELOPMENT ("PROJECT") AT 300 ULLOA STREET

MOVED, That the San Francisco City Planning Commission ("Commission") hereby SUSTAINS the appeal of the Department of City Planning's decision to issue a Negative Declaration, based on the following findings:

1. On December 24, 1987, pursuant to the provisions of the California Environmental Quality Act ("CEQA"), the State CEQA Guidelines, and Chapter 31 of the San Francisco Administrative Code, the Department of City Planning ("Department") received an Environmental Evaluation Application form for the Project, in order that it might conduct an initial evaluation to determine whether the Project might have a significant impact on the environment.

2. On April 29, 1988, the Department determined that the Project, as proposed, could not have a significant effect on the environment.

3. On April 29, 1988, a notice of determination that a Preliminary Negative Declaration would be issued for the Project was duly published in a newspaper of general circulation in the City, and the Preliminary Negative Declaration posted in the Department offices and mailed to the project sponsor, all in accordance with law.

4. On May 6, 1988, an appeal of the decision to issue a Negative Declaration was timely filed by Helen Barkley, President of the Greater West Portal Neighborhood Association.

5. On May 26, 1988, the Commission held a duly noticed and advertised public hearing on the appeal of the Negative Declaration, at which testimony on the merits of the appeal, both in favor of and in opposition to, was received. The Commission also held duly noticed and advertised public hearings on the appeal of the Negative Declaration on June 9 and July 7, 1988.

6. Staff memoranda, dated May 19, June 9, and July 1, 1988, have been prepared which address and respond to several points raised by appellant in the appeal letter and in subsequent submittals to the City Planning Commission. These memoranda are incorporated by reference herein. Copies of these memoranda have been delivered to the City Planning Commission, and copies of these memoranda are on file and available for public review at the Department of City Planning, 450 McAllister Street. These memoranda, along with other data in the Initial Study and in the file, provide the basis for focusing further environmental analysis on the following issues:

Geology: further environmental analysis will focus on plans for the stabilization of the hillside above the proposed development site. Project alternatives will consider the slope stabilization parameters recommended by project geotechnical consultants and those recommended by Mr. Donald Hillebrandt, a geotechnical consultant familiar with the conditions on the project site.

Transportation: further environmental analysis will focus on project transportation impacts and the methodologies used by both consultants to reach their respective conclusions on environmental effects.

Visual: visual effects otherwise appropriately discussed during the consideration of the project's Conditional Use authorization application will be analyzed as part of the environmental analysis.

Population: the introduction of residents, employees and visitors associated with the proposed project to the surrounding residential neighborhood will be further discussed.

Noise: Noise aspects of the project will be considered.

Open Space: Any effects of the proposed project and alternatives on the adjacent open space under the jurisdiction of the Recreation and Park Department will be analyzed.

Alternatives: further environmental review will result in an analysis of alternatives to the project, including a similar but smaller residential care use than presently proposed, alternative uses for the site permitted within the existing zoning regulations (including single-family homes), the geotechnical alternatives discussed above and a "no project" alternative.

7. In reviewing the Negative Declaration issued for the Project, the Commission has had available for its review and consideration all information pertaining to the project in the Department's case file.

DECISION

The City Planning Commission HEREBY DOES FIND that the proposed Project could have a significant effect on the environment, and HEREBY DOES SUSTAIN the appeal of the Department of City Planning's decision to issue a Negative Declaration and hereby finds that an Environmental Impact Report focusing on geology, transportation, visual, population, noise and open space impacts is required.

I hereby certify that the foregoing Motion was ADOPTED by the City Planning Commission at its regular meeting of July 7, 1988.

Lori Yamauchi
Secretary

AYES: Commissioners Bierman, Boldridge, Dick, Engmann, Hu, Karasick and Morales

NOES: None

ADOPTED: July 7, 1988

IMC174

NEGATIVE DECLARATION

Date of Publication of
Preliminary Negative Declaration: April 29, 1988, as amended on May 23 and July 1,1988

Lead Agency: City and County of San Francisco, Department of City Planning
450 McAllister Street, 5th Floor, CA 94102

Agency Contact Person: Ivan M. Christie Telephone: (415) 558-6386

Project Title: 87.399EC
Residential Care Facility

Project Sponsor: Urban Holdings, Inc.
Project Contact Person: Bill Morris

Project Address: 300 Ulloa Street, north side near Waithman Way

Assessor's Block(s) and Lot(s): Lot 7 in Assessor's Block 2876

City and County: San Francisco

Project Description: Proposed construction of a three to four-story 80,100 square foot residential care facility which would contain 108 rental rooms, with 61 off-street parking spaces provided; the project is proposed as a Planned Unit Development subject to Conditional Use authorization by the City Planning Commission and includes the subdivision of Lot 7 into two lots.

Building Permit Application Number, if Applicable: Not Yet Filed

THIS PROJECT COULD NOT HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT. This finding is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15064 (Determining Significant Effect), 15065 (Mandatory Findings of Significance) and 15070 (Decision to Prepare a Negative Declaration), and the following reasons as documented in the Initial Evaluation (Initial Study) for the project, which is attached:

The proposed project is the construction of a residential care facility on the site of the First Church of the Nazarene at 300 Ulloa Street, the north side immediately west of Waithman Way, Lot 7 in Assessor's Block 2876. The project would consist of 108 rental rooms in a three and four-story building above a basement level garage. A total of 61 off-street parking spaces would be provided on the site, 49 more than presently exist on the site. Of this total, 21 spaces would be provided for the project. The remaining 40 spaces would be provided for the existing church, which would remain on the site upon project completion. The project sponsors are requesting consideration of the proposal by the City Planning Commission as a Planned Unit Development. The proposal includes the subdivision of Lot 7 into two lots.

According to the project sponsors, the project is proposed to serve as a residential care facility for people with limited ambulatory ability who are

-Over-

Mitigation measures, if any, included in this project to avoid potentially significant effects:

See page 7

Final Negative Declaration adopted and issued
on _____

BARBARA W. SAHM
Environmental Review Officer

cc: Robert Passmore
Larry MacDonald
Distribution List
Paul Rosetter
Bulletin Board
Master Decision File

BWS:IMC:emb
IMC:149

able to live moderately independent lives with basic assistance. Residential care facilities require a license from the State, may only serve residents 62 years of age or older, and provide full meal service, laundry service and a full activities program. The facility would consist of studio, one-bedroom and a few two-bedroom rental rooms, designed primarily for single residents, although a small percentage of the units would accommodate couples. The number of residents at full occupancy would be approximately 130 people. There would be no infirmary; nursing care would not be provided. The residential rooms would not contain kitchens as the facility would have a centrally-located dining room. Common areas devoted to a living room, library, smoking room, chapel, crafts room and beauty parlor would be provided. A portion of the ground floor would be used for administrative offices. A housekeeping staff of approximately 26 people would be employed on the site, although it is expected that a maximum of 15 employees would be working on the site at any one time.

The project building would contain approximately 80,100 square feet (covering roughly 23% of the site), and would be divided into approximately 67,600 square feet of residential use, 13,560 square feet of basement parking, and 12,500 square feet of common area. The building's basement level would contain 45 parking spaces; the 17 remaining project off-street parking spaces would be provided outside the building. According to the project sponsors, the building is designed to present the appearance of a series of buildings above the ground floor basement, with its elevation divided into modules. The building would have an average height of 30 feet.

The site is an approximately 3.3 acre irregularly-shaped lot within an RH-1-(D) (Single-Family Detached) zoning district and 40-X height and bulk district. It was formerly used as a quarry (long since abandoned) and contains steep hillsides above and below a graded horizontal bench approximately 100-150 feet in width (the proposed location of the project). The hillside above this bench rises to a height of 125 feet at its highest point, with vertical slopes in some areas. Single-family homes fronting Edgehill Way sit at the top of this hill. Rockfalls have occurred on the site, most notably in 1967 and 1978, and evidence of this activity can be clearly seen. Steeply cut slopes exist below the site's southern and southwestern property lines, above and behind a row of single-family dwellings which front the 300 block of Ulloa Street. The graded bench is essentially void of trees, but parts of the slope above and below the site contain substantial amounts of scotch broom and other shrubbery as well as eucalyptus and fir trees; parts of the slope above the site are barren. The 7,500 square foot Church of the Nazarene, recently rehabilitated, sits on the eastern portion of the graded bench and would remain upon project completion. Playground equipment and asphalt areas to accommodate ten delineated church parking spaces comprise the rest of the uses on the site. Access to the site is via a driveway extending upward from the southeast corner of the lot at Ulloa Street near Waithman Way.

The surrounding area is residential in character and consists of single-family dwellings within an RH-1-(D) district. Four single-family dwellings are presently under construction immediately east of the project's driveway on Ulloa Street. The West Portal Neighborhood Commercial District lies approximately five blocks southwest of the site. The St. Brendan's Church and School lie one block to the east along Ulloa Street. Portola Drive, a major east/west thoroughfare, lies one block to the south. Adjacent to the site to the west and immediately behind the row of single-family dwellings fronting Kensington Way lie lots that have been recently purchased by the City for preservation as Open Space. These lots contain dense low-growth shrubbery and dense stands of eucalyptus.

The project would be subject to Conditional Use authorization by the City Planning Commission. Residential uses permitted as-of-right within an RH-1-(D) district include single-family homes with side yards as required by Section 133 of the City Planning Code; dwellings designed specifically for and occupied by senior citizens or physically-handicapped persons at a density not exceeding twice the number of single-family units permitted on the site; residential care facilities providing lodging, board and care for no more than six persons; and a child care facility for 12 or fewer children. Uses permitted by Conditional Use authorization include residential care facilities for seven or more persons and child care facilities for 13 or more children.

The project is proposed as a Planned Unit Development (PUD) under Section 304

of the City Planning Code. Consideration of a project as a PUD is provided for sites greater than 1/2 acre in size. As stated in the City Planning Code, the objectives of a PUD are to develop a project "...as integrated units...designed to produce an environment of stable and desirable character which will benefit the occupants, the neighborhood and the City as a whole...". Although the project would be larger in scale than the residences in the surrounding area, the nature of the project's use combined with the location of the site would not substantially impact the existing character of the vicinity. The project would be set back from Ulloa Street and would not disrupt nor divide the physical arrangement of the surrounding area.

The 143,600 square foot site is proposed to be subdivided from one lot into two. Parcel A would contain the proposed residential care facility and would contain 125,600 square feet. Parcel B would consist of the remaining 18,000 square feet of the existing lot and would contain the existing church building. The proposed subdivision would require review and approval from the Department of Public Works.

A transportation study prepared for an earlier 115-bedroom proposal was prepared by an independent consultant and is available for public review in the offices of the Department of City Planning, 450 McAllister Street. The results of the study are summarized herein.

Ulloa Street, Waithman Way and Portola Drive are the most important streets that serve the site. Ulloa Street is one-way eastbound, Waithman Way is a two-lane, two-way street, and Portola Drive is a four-lane street containing a median strip which prevents left turns onto Portola from Waithman. Intersections in the vicinity are generally controlled by "STOP" signs. The intersections of Laguna Honda Blvd./Portola Drive and Portola Drive/Miraloma-Marne are signalized. Existing traffic conditions in the area are within acceptable levels of service during the a.m. and p.m. peak hours and are generally light throughout the day. Traffic on Ulloa may be occasionally stopped in front of St. Brendan's School during school drop-off and pick-up times, but this condition generally does not occur during the citywide peak periods. Traffic accident rates have been low relative to the volume of area traffic.

The project would generate a minimal traffic impact on the surrounding streets. The study noted that determining the vehicle trip generation for facilities like the proposed project is difficult to quantify. Auto ownership and use depend on such factors as age, income, the availability of transit and the availability of commercial uses within walking distance. Eight facilities similar to that of the project, located in San Francisco or elsewhere in the Bay Area, were surveyed and compared with previous studies of other similar facilities. Based on these analyses, a maximum vehicle trip generation rate was developed which included not only project residents but staff, visitors, truck deliveries, and a proposed van shuttle that would be provided for project residents to serve specific purposes such as shopping and doctor's appointments. The study found that the project could typically generate 92 round trips per weekday, with a potential maximum of 196 round trips per weekday. During the peak p.m. hour (5:00-6:00), the study estimates the project could typically generate 8 one-way trips, with a potential maximum of 35 one-way trips. The project would not substantially affect area traffic. Maximum traffic effects associated with the church use is generally confined to Sundays, when area traffic levels are lower, and would not be cumulatively considerable when combined with Sunday traffic impacts generated by the project.

Access to the site would be primarily via Waithman Way. The intersection of Ulloa Street and Waithman Way is a "T" intersection. The project's driveway is immediately to the west of this intersection, forcing those vehicles entering the site from Waithman to turn against eastbound traffic on Ulloa in order to enter the site. The project sponsor has requested the City's Traffic Engineering Bureau to reposition "STOP" signs and markings at the Ulloa/Waithman intersection in order to develop a suitable junction which would allow project-bound vehicles from Waithman to enter the site safely. It is within the purview of the Traffic Engineering Bureau to develop such a junction; the Bureau has indicated its preliminary approval of the project sponsor's request. This would facilitate access to the site by those vehicles

traveling from the north or east, and those south or westbound vehicles exiting the site, to use Portola Drive via Waithman. Because of the median along Portola Drive, vehicles exiting the site and traveling north or eastbound would be required to travel up Ulloa Street to Laguna Honda Blvd. Vehicles traveling to the site from the south or west would typically approach the site via Ulloa. The project's traffic distribution would not substantially affect area traffic conditions.

Should the repositioning of STOP signs and other changes at the Ulloa/Waithman intersection not occur, vehicles travelling to and from the site would have to use Ulloa Street. While traffic on Ulloa would increase under this scenario, the number of vehicles associated with the project that would be introduced onto the street would not significantly affect traffic operations and existing levels of service in the surrounding area, given present conditions. Some vehicles would be expected to access the site via Waithman Way whether the intersection alterations occur or not.

Parking impacts associated with the project would similarly not be considerable. Under the City Planning Code, the project would be required to provide a maximum of 14 off-street spaces, compared with the 21 proposed to be provided. An additional 40 spaces would be provided for the church use for a total of 61 spaces on the site. As noted above, the site presently contains about 10 designated off-street parking spaces, although the existing site conditions can accommodate a larger number of parking spaces. Because of the limited use of the church building, vehicles associated with the project could use a portion of the 40 church-designated spaces for parking. The traffic study noted that under a maximum impact scenario, some parishioners would have to use on-street parking spaces on Sundays. The likelihood of this condition occurring would be minimal, however.

The traffic study estimates that the project could generate a maximum of two truck trips per day, based on information supplied by the project sponsor and on results from the study's survey of similar facilities. Although the City Planning Code would not require the provision of a truck loading space on the site, the project would contain one off-street truck loading space. The project would provide a turning area to allow trucks to maneuver within the site. Most deliveries would be in vans or single-unit trucks. It does not appear that large semi-tractor/trailer trucks would be necessary to serve the site. These kinds of trucks may be necessary during some phases of project construction; however, substantially more truck maneuvering space would be available during project construction.

Transit service in the area consists of the 43 and 48 lines, both of which travel within approximately one block of the site, and MUNI Metro lines available at the nearby West Portal station. The project would have a minimal impact on area transit operations.

The proposed project would increase demand for and use of public services and utilities on the site and increase water and energy consumption, but not in excess of amounts expected and provided for in this area.

Title 25 of the California Government Code establishes uniform noise insulation standards for residential projects. The Bureau of Building Inspection would review the final building plans to ensure that the building wall and floor/ceiling assemblies meet State standards regarding sound transmission.

An evacuation and emergency response plan shall be developed by the project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to ensure coordination between the City's emergency planning activities and the project's plan and to provide for building occupants in the event of an emergency. The project's plan shall be reviewed by the Office of Emergency Services and implemented by building management insofar as feasible before issuance of final building permits by the Department of Public Works.

Demolition, construction and operating noise impacts generated by the project would be controlled by the San Francisco Noise Ordinance and, consequently, would not substantially increase noise levels above those in the area.

Demolition and construction activity would temporarily raise dust levels in the area, but not to a level that would have significant impacts upon air quality. The project sponsor would be required and has agreed to water the site twice daily during project construction, to reduce dust emissions.

The project would require the removal of approximately 35 trees as part of project construction, primarily on the western end of the site. Removal of these trees would not substantially diminish the amount of trees in the immediate vicinity of the project nor substantially affect the City open space adjacent to west. Trees would remain on the project's southwestern slope to act as a buffer between the project building and those residences fronting Ulloa Street. Additionally, the project sponsor has proposed to plant about 35 trees as part of the project. There are no known rare or endangered plant or animal species on the site. The open space adjacent to the site is protected by the City's Park Shadow Ban Ordinance. Although the project may cast shadow on this open space during portions of sunlit days, the project's 40-foot height limit would exempt it from the restrictions of this ordinance.

The project would not displace a large number of people nor would it create a substantial demand for additional housing in San Francisco. As discussed above, the impacts associated with the increase in population on the site would not be substantial and would not induce substantial population growth in the area.

A number of geotechnical reports have been prepared for the site by independent consultants over the past several years. Most notable are studies prepared by Don Hillebrandt and Associates in June, 1981 (for a previous 42-unit condominium proposal) and September, 1987, and a study by Dames & Moore in November, 1987. These three reports and others prepared for the site are available for public review in the offices of the Department of City Planning. The findings of these reports are included herein.

As stated in the 1981 Hillebrandt investigation, the site is underlain by Franciscan Chert Bedrock, a rock type found throughout San Francisco. As stated above, the site has been subject to periodic rockfall activity during its recent history; the last significant slide activity on the site occurred in 1978. As a result of the slides at that time, the City's Bureau of Building Inspection required mitigation measures to be implemented on the slope behind the church and suspended the use of the site for church activities until satisfied that those measures had been completed. The church building was not permitted to reopen until September, 1987, after all required stabilization/protection work to ensure slope stability behind the church building had been completed. The work performed included the removal of large rocks, installation of rock bolts and galvanized double-twisted wire mesh onto the slope, and the construction of an eight-foot high, heavily reinforced retaining wall immediately behind the north side of the church building.

The slope behind the project site is presently unstable and would be subject to similar stabilization work as was completed on the slope behind the church. The Hillebrandt report considered two ways to control rockslide activity on the slopes above the site. The most desirable option would be to completely stabilize the entire hillside. This proposal was rejected by the engineering consultants as being extremely difficult and dangerous to perform. The alternative recommended, as stated by Hillebrandt, "...would not attempt to retain the hillside but would accommodate potential future rockfalls and sloughing/ravelling by a protective wall and fence system that would yield and possibly fail (i.e. weakened to a point where it could no longer function as a retaining wall) in the event of a major rockslide (resulting either from a large-magnitude earthquake or heavy rainfall) but would still protect life and occupied building space."

The Dames & Moore report, which incorporated the analysis of the Hillebrandt study, contains several recommendations for slope stability and concludes that the project "...is feasible from a geotechnical standpoint." According to Dames & Moore, "the essentially vertical cliff of massive chert (on a portion of the slope above the proposed project) appears to be the most dangerous portion of the existing slope". The recommendations include: flattening the top portion of the chert cliff, removing loose rock masses where possible and rock-bolting the remaining rock mass. These measures are recommended to take

place prior to the following measures: removal of partially buried chert boulders; stabilization of the existing unstable condition of the rock immediately beneath Edgehill Way by underpinning that roadway with a pier and grade beam system; controlling erosion activity and/or shallow sloughing activity in the western area of the site through grooming to achieve a gradual slope; scaling the surface to remove weaker materials; and covering the slope with a wire mesh. In addition, a catchment/retaining wall is recommended for construction at the final toe of the slope (after removal of loose rock materials). In response to the latter consultant recommendation, the project sponsor proposes to build an approximately 325-foot concrete catchment wall approximately ten feet in height which would extend along the base of the slope behind the proposed facility. A 10-15 foot buffer zone would be provided between the toe of the slope and portions of the building, the catchment wall being constructed at the final toe site. The net effect of all of these recommended measures is achieve greater stability of the slopes above the project site than presently exists; project construction by itself would not destabilize Edgehill Way nor further destabilize the above hillside.

In the opinion of the geotechnical consultants, the recommended mitigation measures would adequately protect the proposed development. However, both Hillebrandt and Dames & Moore state that raveling of thinly bedded chert rock above the project site will continue. As a result, both consultants recommend that a long-term maintenance program be established for the development. This would include the allocation of appreciable funds to (1) clean-up rock debris from any future rockfalls and/or ravelling/sloughing slopes, (2) repair and/or replace protective walls should they become damaged for any reason, and (3) maintain trees and vegetation on slopes". Additionally, Hillebrandt states that "surface water runoff must be carefully controlled at the site...(and) directed...away from the slopes to the south and southwest of the site". Retaining walls constructed are also recommended to be well-drained.

The recommendations offered in the Dames & Moore opinions, which incorporated the earlier Hillebrandt analysis, are hereby incorporated by reference as mitigation measures in this environmental analysis. Therefore, these mitigation measures would be incorporated as conditions of project approval by the City Planning Commission, should the Commission decide to approve the project as proposed or approve a modified version. Additionally, should the project be approved by the City Planning Commission, the Bureau of Building Inspection (BBI) would review the final building plans as well as the geotechnical studies. In reviewing building plans, the BBI refers to a variety of information sources to determine existing hazards and assess requirements for mitigation. Sources reviewed include maps of Special Geologic Study Areas and known landslide areas in San Francisco as well as building inspectors' working knowledge of areas of special geologic concern. The above-referenced geotechnical investigation(s) would be available for use by the BBI during its review of buildng permits for the site. The BBI could require that additional site-specific soils reports be prepared in conjunction with permit applications, as needed. In addition, the BBI has the right to impose additional measures it may feel necessary to ensure that the project can be constructed safely. The BBI also has the right to revoke the project's use permit any time in the future if it believes that the lives of people on the site are in danger as a result of an ineffective slope stabilization maintenance program.

Neighborhood concerns about the stability of the slope below the project site and immediately above the residences fronting Ulloa Street are addressed in opinions by both Hillebrandt and Dames & Moore. Both of these independent consultants believe that the construction of the project on the graded bench would not adversely affect the slope behind the Ulloa Street homes nor those homes along Edgehill Way. Excavation and filling during project construction would be minor and the project buildings would be lightly-loaded i.e. the weight of the buildings themselves would not be so great as to jeopardize slope stability. Water runoff from both the project pad and the hillside above the pad would be collected and transported directly to the City sewer system, which would reduce the amount of water runoff presently affecting the site's southern slopes.

In November, 1986, the voters of San Francisco approved Proposition M, the "Accountable Planning Initiative", which establishes eight Priority Policies. These policies are: preservation and enhancement of neighborhood-serving retail uses; protection of neighborhood character; preservation and enhancement of affordable housing; discouragement of commuter automobiles; protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership; earthquake preparedness; landmark and historic building preservation; and protection of open space. Prior to issuing a permit for any project which requires an Initial Study under CEQA or adopting any zoning ordinance or development agreement, the City is required to find that the proposed project or legislation is consistent with the Priority Policies.

While local concerns or other planning considerations may be grounds for modification or denial of the proposal, there is no substantial evidence that the project could have a significant effect on the environment.

MITIGATION MEASURES INCLUDED AS PART OF THE PROJECT:

1. GEOLOGY: The project sponsor would follow the recommendations of the geotechnical reports referenced in the above text. These recommendations include but are not limited to the following:

   a. Loose rock masses would be removed where possible; remaining rock mass would be rock-bolted.

   b. Partially-buried chert boulders would be removed.

   c. The top portion of the chert cliff would be flattened.

   d. The portion of Edgehill Way above the site would be stabilized by underpinning that roadway with a pier and grade beam system.

   e. The surface of the slope above the site would be scaled to remove weaker materials.

   f. Erosion activity and/or shallow sloughing activity in the western area of the site would be controlled through grooming to achieve a gradual slope.

   g. The slope above the site would be covered with a wire mesh

   h. A catchment/retaining wall would be constructed at the base of the slope.

   i. A 10-15 foot buffer zone would be provided between the final toe of the slope (after removal of loose rock materials) and portions of the building, with a catchment wall constructed at the final toe site.

   j. A maintenance program to ensure the safety of project residents from potential slope failure or periodic minor rock falls would be implemented by the managers of the proposed facility, which would include the allocation of appreciable funds to (1) clean-up rock debris from any future rockfalls and/or ravelling/sloughing slopes, (2) repair and/or replace protective walls that are damaged, and (3) maintain trees and vegetation on slopes.

2. Such additional measures as may be imposed by the Bureau of Building Inspection.

IMC149:emb

ENVIRONMENTAL EVALUATION CHECKLIST
(Initial Study)

File No: 87.399EC Title: Residential Care Facility

Street Address: 300 Ulloa Street Assessor's Block/Lot: 2876/07

Initial Study Prepared by: Ivan M. Christie

	Not Applicable	Discussed
A. COMPATIBILITY WITH EXISTING ZONING AND PLANS		
1) Discuss any variances, special authorizations, or changes proposed to the City Planning Code or Zoning Map, if applicable.	—	✓
*2) Discuss any conflicts with any adopted environmental plans and goals of the City or Region, if applicable.	✓	—

B. ENVIRONMENTAL EFFECTS - Could the project:

	YES	NO	DISCUSSED
1) Land Use			
*(a) Disrupt or divide the physical arrangement of an established community?	—	✓	✓
*(b) Have any substantial impact upon the existing character of the vicinity?	—	✓	✓
2) Visual Quality			
*(a) Have a substantial, demonstrable negative aesthetic effect?	—	✓	—
(b) Substantially degrade or obstruct any scenic view or vista now observed from public areas?	—	✓	—
(c) Generate obtrusive light or glare substantially impacting other properties?	—	✓	—
3) Population			
*(a) Induce substantial growth or concentration of population?	—	✓	✓
*(b) Displace a large number of people (involving either housing or employment)?	—	✓	✓
(c) Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?	—	✓	✓
4) Transportation/Circulation			
*(a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?	—	✓	✓
(b) Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?	—	✓	✓
(c) Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?	—	✓	✓
(d) Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	—	✓	✓
5) Noise			
*(a) Increase substantially the ambient noise levels for adjoining areas?	—	✓	✓
(b) Violate Title 24 Noise Insulation Standards, if applicable?	—	✓	✓
(c) Be substantially impacted by existing noise levels?	—	✓	✓

* Derived from State EIR Guidelines, Appendix G, normally significant effect.

ED 3.11 6/87

	YES	NO	DI.
6) Air Quality/Climate			
*(a) Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	—	✓	✓
*(b) Expose sensitive receptors to substantial pollutant concentrations?	—	✓	—
(c) Permeate its vicinity with objectionable odors?	—	✓	—
(d) Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?	—	✓	✓
7) Utilities/Public Services			
*(a) Breach published national, state or local standards relating to solid waste or litter control?	—	✓	—
*(b) Extend a sewer trunk line with capacity to serve new development?	—	✓	—
(c) Substantially increase demand for schools, recreation or other public facilities?	—	✓	—
(d) Require major expansion of power, water, or communications facilities?	—	✓	✓
8) Biology			
*(a) Substantially affect a rare or endangered species of animal or plant or the habitat of the species?	—	✓	✓
*(b) Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	—	✓	—
(c) Require removal of substantial numbers of mature, scenic trees?	—	✓	✓
9) Geology/Topography			
*(a) Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction).	—	✓	✓
(b) Change substantially the topography or any unique geologic or physical features of the site?	—	✓	✓
10) Water			
*(a) Substantially degrade water quality, or contaminate a public water supply?	—	✓	—
*(b) Substantially degrade or deplete ground water resources, or interfere substantially with ground water recharge?	—	✓	—
*(c) Cause substantial flooding, erosion or siltation?	—	✓	—
11) Energy/Natural Resources			
*(a) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	—	✓	—
(b) Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	—	✓	—
12) Hazards			
*(a) Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?	—	✓	—
*(b) Interfere with emergency response plans or emergency evacuation plans?	—	✓	✓
(c) Create a potentially substantial fire hazard?	—	✓	—
13) Cultural			
*(a) Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study?	—	✓	—
(b) Conflict with established recreational, educational, religious or scientific uses of the area?	—	✓	—
(c) Conflict with the preservation of buildings subject to the provisions of Article 10 or Article 11 of the City Planning Code?	—	✓	—

ED3.11/1 3/87

C. OTHER

	YES	NO	DISCUSSED
Require approval and/or permits from City Departments other than Department of City Planning or Bureau of Building Inspection, or from Regional, State or Federal Agencies?	✓	—	—

D. MITIGATION MEASURES

	YES	NO	N/A	DISCUSSED
1) If any significant effects have been identified, are there ways to mitigate them?	✓	—	—	✓
2) Are all mitigation measures identified above included in the project?	✓	—	—	✓

E. MANDATORY FINDINGS OF SIGNIFICANCE

	YES	NO	DISCUSSED
*1) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history?	—	✓	—
*2) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	—	✓	—
*3) Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.)	—	✓	—
*4) Would the project cause substantial adverse effects on human beings, either directly or indirectly?	—	✓	—

F. ON THE BASIS OF THIS INITIAL STUDY

— I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

✓ I find that although the proposed project could have a significant effect on the environment, there there WILL NOT be a significant effect in this case because the mitigation measures, numbers 1-2, in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

— I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Barbara W. Sahm

BARBARA W. SAHM
Environmental Review Officer
for

DEAN L. MACRIS
Director of Planning

DATE: 4/29/88

BWS:eh
OER:23

ED3.11/1 3/87

APPENDIX B

Transportation [1]

PROJECT-GENERATED TRAFFIC IMPACTS

Traffic Impacts on the Residential Environment

Project site neighbors have expressed concerns about adding traffic to the 200-block of Ulloa Street between Waithman Way and Laguna Honda Boulevard, the primary location where parents drop-off and pick-up students at St. Brendan's School. While the ADT of 1,081 trips is considered low for a residential street, short peaks occur when parents transporting children arrive at or leave the school. (During these peaks, limited street frontage for parking or waiting vehicles also contributes to traffic delays.)

During a 24-hour period, the project would generate an estimated 200 vehicle trips, half of which would be inbound (100) and half outbound (100). Only outbound traffic leaving the site (none inbound) could use the 200-block of Ulloa Street, since it is one way, and, of all outbound traffic, 45% would be expected to use this block (with 55% using Waithman Way). Of the approximately 45 daily trips the project is expected to add to the 200-block of Ulloa Street, eight trips would be made in the peak school hour between 2:00 and 3:30 PM.

Methodological Considerations

Little attention has been given to the impact of traffic on residential street environments in standard traffic handbooks and texts which do not contain quantitative methods for analyzing the impacts from changes in traffic volume, although several reports and articles have been published. [2] The lack of engineering interest in this topic may be due to the difficulty of establishing objectively "how much traffic is too much" on a residential street while physical (engineering) capacity is an observable quantity which can be established using scientific methods. The maximum of number of vehicles acceptable in a residential environment is a subjective, psychological value which this not well understood.

Colin Buchanan's 1963 study, Traffic in Towns, is one of the earliest attempts to establish the "environmental capacity" (his term) of a street. Buchanan proposed simple methods for assessing environmental capacity, based primarily on the

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[1] Appendix B is extracted from the traffic study prepared by DKS Associates; that study is in the project file at the Department of City Planning, 450 McAllister Street, San Francisco.

[2] Salem Spitz, "How Much Is Too Much (Traffic)", op. cit., Federal Highway Administration, "Improving the Residential Street Environment", op. cit., Donald Appleyard, "Environmental Quality of City Streets: The Residents' Viewpoint", op. cit., Colin Buchanan, Traffic in Towns, op. cit., and Donald Appleyard, Livable Streets, op. cit.

danger to people who wish to cross the street. An average delay to all crossing pedestrians of two seconds was identified as the rough borderline between acceptable and unacceptable conditions, although this value was not supported by interviews or other factual data. Three other considerations include the vulnerability of crossing pedestrians (young and old), the physical condition of the road, and the general level of pedestrian activity. For areas with large numbers of children, Buchanan suggested that "acceptable" traffic volumes should not exceed about 75 to 90 vehicles per hour. He also noted the importance of speed in residential street environments, stating that "vehicle speeds in excess of 20 MPH were incompatible with the needs of pedestrians and the environment generally".

Donald Appleyard of the University of California, Berkeley, continued Buchanan's work with extensive interviews of Berkeley and San Francisco residents in the 1970s. Appleyard asked residents along streets with various traffic volumes to rate such subjective factors as danger for children from traffic, appearance of the street, pollution, noise from traffic, general traffic danger, and careless drivers. One finding was that, while some general relationships exist between the perceived threat from traffic and traffic volumes on the street, the relationship is complex. For example, on six streets with ADTs under 1,000 vehicles, respondents bothered by "danger for children from traffic" ranged from under ten percent (Beaumont Street) to 50% (Shotwell Street). Appleyard classified streets with "light traffic" as having under 2,000 ADT, but Salem Spitz has placed this threshold at 1,200 ADT.

Quantitative Evaluation

Most of the studies noted above provide a method for setting a threshold between acceptable and unacceptable levels of traffic on a residential street but do not indicate whether an increment of new traffic on a street would or would not be noticeable to residents. The only method which provides this type of evaluation appears to be the TIRE Index (Traffic Infusion on a Residential Environment) developed by Donald Goodrich. According to documentation provided by Goodrich:

> TIRE is a numerical representation of a resident's perception of the effect of street traffic on activities such as walking, cycling and playing, and on daily tasks such as maneuvering an auto out of a residential driveway. TIRE is expressed by index values that range from zero, representing the least effect of traffic, to five, representing the severest effect. TIRE is based on a logarithmic association between traffic and residential environment and as such predicts three interesting relationships. According to TIRE a given change in street traffic volume will cause a greater impact on residential environment on a street with a low pre-existing traffic volume that it will on a street with a higher pre-existing traffic volume. Yet, any traffic change that would cause an index change of 0.1 or more would be noticeable to street residents. Streets with TIRE levels above the midrange index of 3 are traffic-dominated, while those with indexes below 3 are better suited for residential activities.

Goodrich cites the work done by Appleyard and Buchanan as sources but provides no other specific documentation or justification for the 0.1 threshold of noticeability. No documentation is available to explain how the TIRE Index

values were derived or how the threshold of noticeability was determined. [3] In the absence of another method to perform this task, the TIRE method was used to assess the impacts of the project.
TIRE Index values are based on ranges of ADTs. Using the mid-range values to estimate the TIRE Index values, the formula for calculating a TIRE value is:

TIRE Index Number = 0.434 (ln (ADT)) where:
ln = natural logarithm function (base = 2.7182...)
ADT = Average daily traffic on the street

Table A-1 shows the TIRE evaluation of project-generated traffic on the 200- and 300- blocks of Ulloa Street. The TIRE evaluation was not performed for Waithman Way because no houses face this street directly, and other streets, such as Portola Drive, were not analyzed because they are primarily thoroughfare streets. The evaluation shows that neither block of Ulloa Street would be affected by a noticeable increase in traffic, although, as of the 1988 counts, the 200-block is close to the threshold level.

TABLE A-1

Tire Evaluation of Project Traffic
(144 Residents and 200 ADT)

	300-Block Ulloa Street	200-Block Ulloa Street
Existing ADT	820	1,081
Existing TIRE Index	2.91	3.03
ADT Added by Project	+25	+45
Total ADT with Project	845	1,126
TIRE Index with Project	2.92	3.05
Change in Index	+0.01	+0.02
Significant? a/	NO	NO

a/ Any traffic change which would cause an index change of 0.10 or more would be noticeable to street residents. The difference between the upper and lower values of ADT for the specific TIRE Index numbers is 179 ADT for a street with 820 ADT, and 209 ADT for a street with 1,081 ADT. According to TIRE's developer, these would be the values which would have to be exceeded before an impact became noticeable.

Source: DKS Associates and Donald K. Goodrich

[3] Telephone conversation with Donald Goodrich, December 19, 1988.

The TIRE methodology has other limitations which include the following:

- It does not consider the time of day when traffic occurs. Noise studies, for example, weight events which occur during the "sleeping" hours of 10:00 PM to 6:00 AM more heavily than those occurring at other hours.

- It does not consider the peaking characteristics of traffic. For example, a street with an ADT of 2,000 cars per day would be treated the same if 100 or 400 cars travelled the street during the peak hour.

- It does not account for the sensitivity of residents along the street (young and old), as suggested by Buchanan.

- It does not take street grades into account. Low volumes on steep streets can be annoying because of engine and brake noises and because of the difficulty of stopping in the downhill direction.

- It does not account for the percentage of trucks and heavy vehicles in the traffic stream.

- It does not account for factors affecting noise, such as setbacks of homes from the street or whether residents have open windows facing the street.

TABLE A-2

Vehicular Levels of Service at Signalized Intersections

Level of Service	Description	Volume/Capacity (V/C) Ratio a/
A	Level of Service A describes a condition where the approach to an intersection appears quite open and open and turning movements are made easily. Little Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. Traffic operation generally can be described as excellent.	Less then 0.60
B	Level of Service B describes a condition where the approach to an intersection occasionally is used fully and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation generally can be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection often is used fully and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted but not objectionably so. The driver occasionally may have to wait more than one red traffic indication. The traffic operation generally can be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are cleared periodically, thus preventing excessive back-ups. The traffic operation generally can be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting upstream of the intersection, and vehicles may be delayed up to several signal cycles. The traffic operation generally can be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

a/ Capacity is defined as Level of Service E.

Source: San Francisco Department of Public Works, Traffic Division, Bureau of Engineering, from Highway Capacity Manual, Highway Research Board, 1965.

TABLE A-3

Traffic and Parking Survey Results -- Elderly Residential Facilities

Name/ Location	# of Residents	Resident Cars	Cars/ Resident	Average Age	# of a/ Employees	Facility Bus?	Transit b/	Visitor Parking	Truck Deliveries c/	Resident Parking
1 Camino Alto (R) d/ Vallejo	48	2	0.04	76	20 (2.4:1)	Y	Y	14	2 (AM)	Y
2 Buena Vista Manor (R) San Francisco	32	3 e/	0.09 e/	NA	15 (2.1:1)	NA	Y	NA	NA	N
3 Olive Lane (C?) f/ Antioch	32	1	0.03	82-85	12 (2.7:1)	Y	Y	15	7 (AM)	Y
4 Retirement Inn (C) Burlingame	64	3 e/	0.05 e/	84	17 (3.8:1)	Y	Y	10	14	Y
5 Retirement Inn (C) Campbell	70	7	0.10	87	16 (4.4:1)	Y	Y	7	4	Y
6 Retirement Inn (C) Fremont	70	2	0.03	76	20 (3.5:1)	Y	Y	NA	2-3	Y
7 Victorian Manor (R) San Francisco	79	0	0.00	75	35 (2.3:1)	NA	Y	Y	2-3	Y
8 Tamalpais Creek (C) Novato	120	8	0.07	86	28 (4.3:1)	Y	Y	45 Total	8	Y
9 University Mound (R) San Francisco	74	0	0.00	80	22 (3.4:1)	NA	Y	N	NA	N

Source: DKS Associates. Telephone surveys and personal interviews, October, 1987.

a/ Numbers in parentheses are the ratio of residents to employees.

b/ Available within two blocks.

c/ Truck deliveries per week.

d/ (R). Residential Care Facility.

e/ Data supplied by project applied from discussions with facility operators.

f/ (C). Congregate Residential Facility.

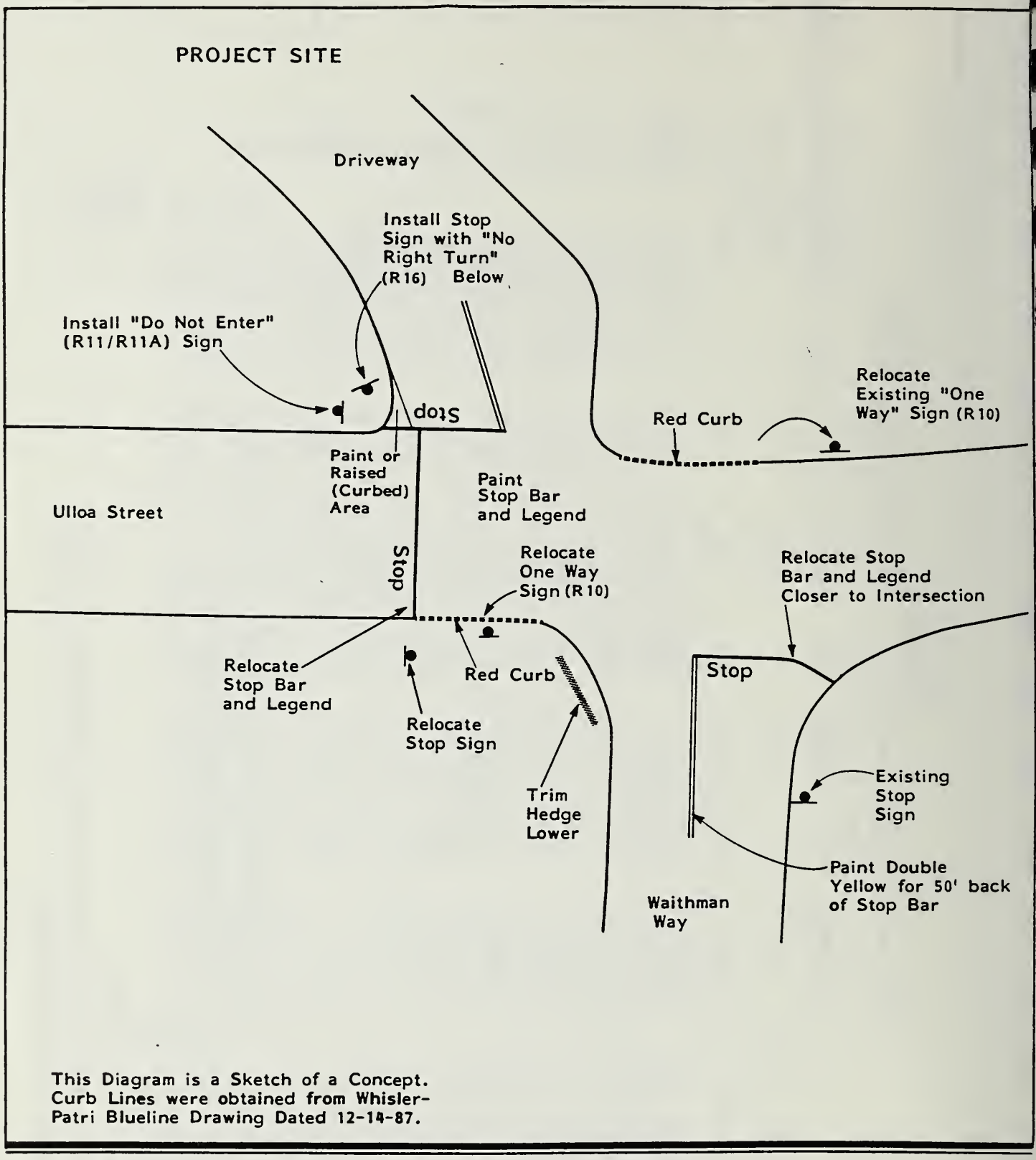

FIGURE A-1 INTERSECTION TRAFFIC CONTROL MODIFICATIONS

N

Source: DKS and Associates

Scale is about 1" = 20' but not all items are to scale.

APPENDIX C

Noise [1]

FUNDAMENTAL CONCEPTS OF ENVIRONMENTAL ACOUSTICS

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) with 0 dB corresponding roughly to the threshold of hearing. Decibels and other technical terms are defined in Table A-1.

Most of the sounds which we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound in accordance with a weighting that reflects the facts that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency mid-range. This is called "A" weighting, and the decibel level so measured is called the A-weighted sound level (dBA). In practice, the level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. Typical A-levels measured in the environment and in industry are shown in Figure A-1 for different types of noise.

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[1] Appendix B prepared by Illingworth & Rodkin, Inc.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources which create a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L_{10}, L_{50}, and L_{90} are commonly used. They are the A-weighted noise levels equaled or exceeded during 10%, 50%, and 90% of a stated time period. A single number descriptor called the L_{eq} is now also widely used. The L_{eq} is the average A-weighted noise level during a stated period of time.

In determining the daily level of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable. Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, a descriptor, L_{dn} (day-night average sound level), was developed. The L_{dn} divides the 24-hour day into the daytime of 7:00 am to 10:00 pm and the nighttime of 10:00 pm to 7:00 am. The nighttime noise level is

weighted 10 dB higher than the daytime noise level. The Community Noise Equivalent Level (CNEL) is another 24-hour average which includes both an evening and nighttime weighting.

The effects of noise on people can be listed in three general categories:

- subjective effects of annoyance, nuisance, dissatisfaction
- interference with activities such as speech, sleep, learning
- physiological effects such as startling, hearing loss

The levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise in the last category. Unfortunately, there is as yet no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance, and habituation to noise over differing individual past experiences with noise.

Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of the existing environment to which one has adapted: the so-called "ambient". In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by the hearers.

With regard to increases in A-weighted noise level, knowledge of the following relationships will be helpful in understanding this report.

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived.

- Outside of the laboratory, a 3 dB change is considered a just-perceivable difference.

- A change in level of at least 5 dB is required before any noticeable change in community response would be expected.

- A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse change in community response.

FIGURE A-1

TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

At a Given Distance From Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
	140		
Civil Defense Siren (100')	130		
			Pain
Jet Takeoff (200')	120		Threshold
	110	Rock Music Concert	
Pile Driver (50')	100		Very Loud
Ambulance Siren (100')			
	90	Boiler Room	
Freight Cars (50')		Printing Press Plant	
Pneumatic Drill (50')	80	In Kitchen with Garbage Disposal Running	
Freeway (100')			
	70		Moderately Loud
Vacuum Cleaner (10')	60	Data Processing Center	
		Department Store	
Light Traffic (100')	50	Private Business Office	
Large Transformer (200')			
	40		Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
	0		

TABLE A-1

TERM	DEFINITION
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dB	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter deemphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time during the measurement period.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels to levels in the evening from 7 pm to 10 pm and after addition of 10 decibels to sound levels in the night between 10 pm and 7 am.
Day-Night Noise Level, L_{dn}	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 pm and 7 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

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